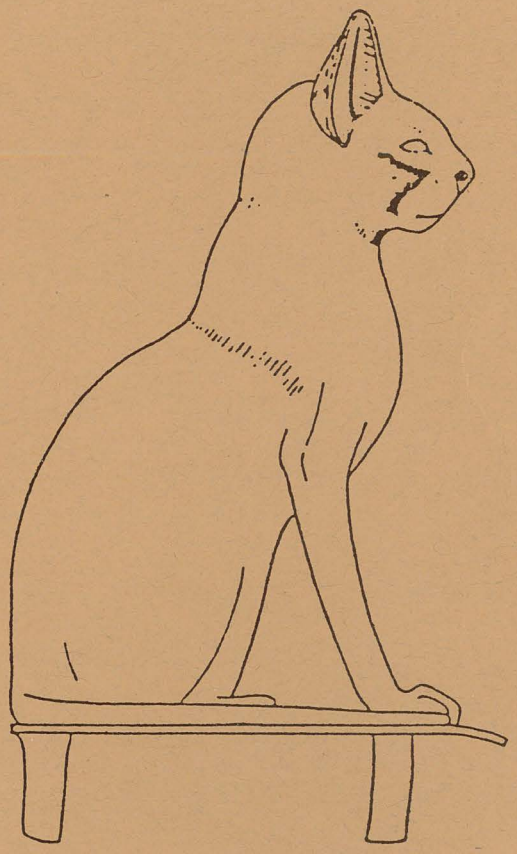
AMERICAN RESEARCH CENTER IN EGYPT

NEWSLETTER



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Cover: a bronze cat (B 846) from an animal cemetery, Late Period in the ancient Egyptian city of Basta

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Shirley Bé
Editor

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THE HISTORY OF SICILY UNDER FATIMID RULE (910-1050 A.D.)
A Short Report

In the summer of 1982 I held an ARCE fellowship in order to pursue my doctoral dissertation research on the history of Sicily under Fatimid rule (910-1050 AD). The focus of my research in Egypt was to examine medieval Arabic manuscripts in the hope of finding new data on this subject.

Sicily was under Islamic rule for over two centuries (827-1070 AD) and the period of Fatimid suzerainty was especially important and dynamic. The island underwent demographic and political changes of far-reaching importance. Muslim colonies increased throughout the country and the influx of immigrants from North Africa accelerated Islamisation of the island. The local nobility of Palermo and its Muslim population, who were of the Maliki school of Sunnis, resisted Shi'ite Fatimid authority. Revolts against North African dominance translated into a movement for more local autonomy, which they were later granted when the seat of the caliph was moved to Cairo.

The period is also notable for its economic good times. Trade with North Africa, Egypt, Spain and southern Italy flourished giving the island a large measure of prosperity. However, there are many gaps in the history of Muslim Sicily during this period and a great deal of research is needed to clarify the condition of the island.

The only comprehensive study dedicated to this is the Italian work by Michele Amari, Storia dei Musulmani di Sicilia, first published in 1872 and revised by Carlo Nallino in 1939. But there has not been any new comprehensive survey aiming towards an analysis or re-evaluation of this topic as yet. Therefore, a major aim of my dissertation is to bring up to date the history of Fatimid Sicily by using new data gleaned from the works of medieval authors which have come to light since Nallino's revised edition. The main source material has come from medieval Arabic manuscripts and recent research conducted by modern scholars.

The task of searching for medieval material concerned with Islamic Sicily is arduous. The paucity of extant medieval sources relevant to the island makes one obliged to search all genres of Arabic writings. Works concerned with history, geography, religion, the physical sciences, literature and language have to be reviewed. The pursuit must also include searchings for writings whose authors and/or titles have come down to us by which as yet have not been found. Medieval writers make mention of many monographs, some authored by Arabo-Sicilians, which focus on Sicily, however these works seem to be lost. The tenth century Arab geographer, Ibn Hawqal, for example, devoted a whole volume to the island's condition, but this source has not been found. The discovery of any of these lost materials would be a great value to our history of Muslim Sicily as well as the Maghrib.

I focused my research on examining the manuscripts on the Dar al-Kutub and the Arab League Institute of Manuscripts. I concentrated on the

materials dealing with the history of the Fatimids, and on perusing the holdings of these institutions for any lost works. I also sough Ibadi writings on the history of the Fatimids, the Ibadiyah, and medieval tabaqat literature in general. I first made a systematic survey of the holdings in the Dar al-Kutub and the Arab League Institute, especially of their recent acquisitions, in order to keep my file as complete as possible.

I examined some fifty volumes at the Dar al-Kutub and forty works on microfilm at the Arab League Institute of Manuscripts. Thanks to th assistance of Michael Albin and Dr. Hagrasy of the Library of Congre office, I was able to review an unofficial new acquisitions catalog the Arab League Institute. Although I was not able to review these matierlas I did make arrangements with several Arab League librarian to get microfilm copies in the future. My research went very well a my efforts were fruitful for I was able to find and acquire microfil copies of some new sources on Sicily, such as al-Turjuman al-maghrib 'an duwal al-maghrib wa al-mashriq by Ibn Ahmad al-Ziyani. I also made arrangements with the Dar al-Kutub to have some other materials microfilmed and sent to me at a later date. I was fortunate to find and copy a fairly rare published source on the Ibadiyah. This last work and one manuscript make my search for Ibadi literature relevant to Sicily successful.

Although I did not uncover any lost materials, the manuscripts I did find are of great value to my doctoral research. The data I uncover will add richly to the history of Muslim Sicily.

Funded by the International
Communications Agency

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1982 ARCE Fellow
University of Utah

THE FAYUM ZOOARCHAEOLOGICAL SURVEY: A PRELIMINARY REPORT

The Fayum Zooarchaeological Survey is an investigation of cultural and climatic change in the Fayum depression of Egypt. Of particular interest is how environmental change may have influenced the apparent sudden shift from a Terminal Paleolithic to a Neolithic subsistence system in this area.

The Fayum depression is one of the major oases of Egypt's western desert. The Fayum is located 60 km southwest of Cairo and covers an area of 12,000 km sq. with a general slope towards Birket Qarun (Fig. 1). Birket Qarun, the lowest part of the Fayum Depression, is 44 m below sea level (Wendorf and Schild 1976) and is the only permanent body of water in the Fayum. Through time the lake has undergone a series of lake shore advances and retreats. Because the topographic relief of the area is minimal, an increase in the amount of water entering into the lake results in greatly increased lake area.

Research during the 1981 season of the Fayum Archaeological Project identified a diverse fauna that lived in or utilized the shallow water resources around the lake. Since lake levels have changed considerably, the remains of these animals are distributed in various densities across the landscape that surrounds present day Lake Qarun.

Archaeological investigations of the Fayum have identified the presence of two distinct cultures: Fayum B, regarded as late Paleolithic and characterized by backed bladelet tools and Fayum A, represented by Neolithic artifacts such as grinding stones, bifacial tools, and pottery. Evidence of agriculture and domestic animals have also been recovered from Fayum A sites. Archaeological sites to the north and southwest of Birket Qarun contain a fairly complete artifactual and faunal record reflecting the development of Egyptian agriculture (Caton-Thompson and Gardner 1934; Wendorf and Schild 1976; Wenke et al. 1982). Analysis of faunal remains recovered during the 1981 Fayum Archaeological field season suggest a change in patterns of animal exploitation during the critical period that agriculture was becoming established in this area. Consequently, the Fayum offers a unique opportunity to investigate changes in faunal communities and the relationship of these changing communities to the environment during the development of agriculture in Egypt.

Since relatively little is known about the functional aspects of Fayum A and B lithic tool assemblages, it is impossible to attribute changes in tool frequency to changes in subsistence practices. The collection and analysis of faunal remains in regard to their environmental as well as their cultural significance remains the most important record documenting cultural change in this area.

Although molluscan remains have been used as indicators of Birket

Qarun's past shorelines (e.g., Caton-Thompson and Gardner 1934), few detailed faunal studies have been conducted in the Fayum. Nonetheless, surficial faunal remains from the area of the lake provide a source of data well-suited for faunal studies. In addition, recovered remains also can provide answers to the following questions concerning the faunal utilization of Fayum A and B cultures:

1. Are there indeed significant differences between faunal remains found in association with Fayum A and B cultures?
2. If so, what are those differences?
3. To what extent can these differences be accounted for by changing environments alone?
4. To what extent can these differences be accounted for in strictly cultural terms?

The Fayum Zooarchaeological Survey has been designed, together with the faunal materials collected from the 1981 Fayum Archaeological Project, to investigate and reconstruct insofar as possible the faunal and environmental history of this region. It is the ultimate goal of this project to shed light on the causes of the differences between those archaeological phenomena known as Fayum A and B.

In order to meet these objectives, it was essential to gather well-controlled information about faunal distributions across both time and space. This required the recovery of two kinds of data. First, detailed information of the distribution of faunal remains across the surface of the study area had to be obtained. Second, in order to acquire information on the succession of faunal assemblages through time, detailed information from buried deposits had to be retrieved.

Collecting surface data posed a number of technical and methodological problems. To begin with, a representative sample of the faunal remains recovered for examination on their provenience, the type of sediments in which they were found, and any artifact association that might exist. I shall discuss my solutions to each of these problems.

To collect a representative sample of the surface materials, it was first necessary to establish the factors that would have influenced the procurement and/or settlement strategies of the early Fayum cultures. Birket Qarun offered the most probable cause of shifts in settlement patterns. Consequently, a transect survey cutting perpendicular to the present shoreline was conducted and three sites were chosen for study (Fig. 1). This type of survey offered the highest probability of crossing the greatest number of former ecological zones that surrounded the lake at different times in its history. A survey structured in this manner would be most likely to encounter fauna representing different microenvironments. The fauna, in association with the sediments and site types will provide information on the nature of faunal distributions across sites as well as clues to past environments.

The first phase of this project involved establishing a series of 5 m transects running perpendicular to the shoreline for each of the three sites studied. It was thought that an increment of 5 m offered the surveyer a good view of artifacts in his immediate vicinity without requiring him to frequently move off his transect line to inspect materials.

When the surveyer identified a bone deposit a survey pin was placed in the ground to mark the spot. Once the entire site had been surveyed and all the bones marked, their positions were measured using a distomat and recorded. The faunal remains within a 2 mile sq. area of the survey pin were then collected. This information, once compiled, will allow the position of the bones to be placed on a topographic map so that relationships to topographic features and bones from different taxa can be demonstrated.

Representativeness of the zooarchaeological sample was checked by redundancy. If, after the initial 5 m survey, continued surveying in each respective site did not add a significant number of new species to the data already gathered, it was argued that common taxa were adequately represented in the sample (figure 2; see also Wolf 1975).

Biases toward the recovery of larger faunal elements were checked by systematic fine screening of surface sediments along the transect line. If no significant difference existed between the screened and sight survey material, bias of this type was considered negligible. This test, applied to survey materials from the Fayum Expedition of 1981 and from the Fayum Zooarchaeological Survey showed that indeed differences between screened materials and sight survey material were insignificant, supporting the assumption that adequate samples can be gathered in this area by sight surveys.

The second phase of the project, currently in progress, involves the analysis of the faunal materials from this season's surface collections and the analysis of the materials recovered from the stratified deposits of excavations conducted during the 1981 Fayum Archaeological Project. These excavations are significant because they produced materials that reflect the change of local microenvironments through time. These changes should be reflected in the faunal assemblages contained within the various excavation strata.

The excavated units provide a series of faunal assemblages characteristic of each stratum. Presence/absence cluster analysis will allow quantitative comparisons to be made between surface and excavated faunas and should provide chronological control for the former. If the survey assemblages appear to be quantitatively the same as the assemblages recovered from specific stratified deposits, similar chronological placement can be inferred. If the faunal assemblages statistically differ, either a different stratum is represented or stratigraphic mixing has occurred.

Although analysis has not been completed, certain preliminary

conclusions can be drawn. Faunal remains found in association with Fayum A and B sites are significantly different. The first and most obvious difference is the presence in Fayum A sites of domesticated animals. Not so obvious, but perhaps more important, is the difference in the rations of fish genera utilized by the Fayum A and B peoples. Fayum A peoples utilized mainly the catfish Clarias but made some use of Lates and Tilapia. Fayum B peoples were much less dependent on Clarias and used different fish species in more equal proportions. This apparent difference in fish utilization could be explained in either cultural or environmental terms.

An explanation of this phenomena, strictly in cultural terms, might suggest that perhaps Fayum A people due to their domesticated animals were not as dependent on the lake's resources as were the Fayum B people, and consequently did not intensively collect all the resources that were available. Rather, they may have only concentrated their efforts on a few species (e.g., Clarias) and then only during the time of year they were most easily captured or most abundant. On the other hand, Fayum B people, having no domesticated food resources, were more heavily dependent on the lake's resources to maintain their livelihood. Consequently, they utilized a larger sample of the world resources available to them. The archaeological results of this would be a faunal assemblage more closely resembling the full spectrum of resources that the lake had to offer. Should change occur in the productivity of lake resources, Fayum B people having no domesticates upon which to rely would be forced to change their subsistence system.

Although archaeological phenomena addressed in cultural terms provide a simple yet plausible explanation, attempts to explain differences between Fayum A and B faunal assemblages may be more accurately represented by confirming or refuting testable propositions based within an environmental framework. It is very likely that an environment factor may have influenced the apparent change in fish utilization seen in Fayum A and B sites. Given the history of Birket Qarun, it is likely that lake level changes may have placed stress on the fish population and resulted in their numbers being diminished. Fayum B people may have compounded the problem by continuing to exploit the fish resources until fishing ceased to be productive enough to sustain their population. Such a crisis would place a culture dependent upon lake resources at a selective disadvantage vis-a-vis a culture dependent upon domesticated animals.

A crisis such as this might explain the sudden disappearance of Fayum B and the sudden appearance of Fayum A cultural manifestations in the Birket Qarun area. Fayum B people were not equipped to shift exploitative strategies to other resources once their primary resource (fish) failed. Fayum A people, because they relied at least in part upon domesticates, could simply shift to other resources when lake resources ceased to be productive. Lake resources, although important, were not the critical focus of survival for the Neolithic Fayum A culture.

The first phase of analysis; the recovery of a representative faunal sample and determining the existence of a difference in the use of faunal resources by prehistoric Fayum cultures, was completed in Egypt. Final analysis, to determine if changes in the environment did occur, is presently being conducted at the University of Illinois where facilities for microscopic study and computer analysis have been provided through Department of Anthropology laboratories. Basic procedures for further research are outlined below.

It has been determined that fish because they are ectothermic animals and are thus dependent on external temperatures to maintain their metabolic activity, possess generally two levels of activity during the span of one year. An active growing period, when metabolic activity is high, corresponding to the warm months in the year; and a less active, almost dormant period, corresponding to the year's cold months. These periods, corresponding to Egypt's cold and warm seasons can be detected on various skeletal elements in fish. The pectoral fin spine of Clarias, is one of the best elements to study this phenomenon. When the pectoral spine is sectioned, it appears to look much like a series of tree rings and can be used in similar ways (fig. 3). The wider, lighter colored bands correspond to the warm weather growth period; while the thin dark bands correspond to colder periods. With the aid of a digital measuring microscope, these bands can be measured and the time of year that the fish died can be determined. It is possible that predictions as accurate as to the month can be ascertained.

The death of the fish is related to the time that the Fayum people were utilizing the lake resources of Birket Qarun. By measuring and comparing band widths between spines associated with areas that Fayum A cultures occupied, and spines recovered from areas associated with Fayum B cultural manifestations, it can be detemined whether a change in environment might have occurred during the period when Neolithic cultures first began to appear in the area. Wider bands during the Fayum A times would suggest conditions more conducive to fish growth; narrower bands would indicate reduced fish activity and reduced growth.

Clarias pectoral spines graciously provided for study by the Egyptian Antiquities Organization through the division of materials collected during the 1981 Fayum Archaeological Project will be analyzed in the above fashion.

If it can be demonstrated through the study of Clarias pectoral fin spines that Fayum A and B peoples exploited fish at different times of the year or for different durations of time, and if it can be documented that an environmental change did occur during that critical period when domesticates first began to appear, it may be plausible to argue that a decrease in fish productivity brought about by changing environmental conditions and continued human exploitation produced a resource crisis. The upper Paleolithic inhabitants were then at a selective disadvantage to other cultures possessing more reliable means of acquiring subsistence needs, in

this case a subsistence system based on domesticates.

Acknowledgements
I would like to express my sincere gratitude to Dr. Ahmed Kadry, President of the Egyptian Antiquities Organization, the Egyptian Antiquities Organization, and to the Permanent Committee for their support of this project. I would especially like to thank Dr. Ali El-Khouil, Director of Middle Egypt, for his kind attention and personal involvement in the project, and to Dr. Mohamed Salah, who was most helpful in allowing me access to the Fayum faunal material housed in the Cairo Museum.
I am also grateful for the help I received from Mr. Al Bazidi, Chief Antiquities Inspector, Fayum, and to the Geology Inspector, Sabhey Samuel Yogoup.

Special thanks is extended to Antiquities Inspector Madagi El Said Abu Alia for his continued service in the field, often in the capacity of a field member when we were short-handed.

Finally, I would like to thank the Directors of the American Research Center, Dr. Robert J. Wenke and Dr. Nanette M. Pyne, for their continued guidance during the project, to Executive Director Paul E. Walker for his help in securing extra funding that was critical to the success of the project, and to the American Research Center and Smithsonian Institute whose funding made the project possible.

Douglas J. Brewer
ARCE Fellow 1983-84
Funded by the Smithsonian Institution

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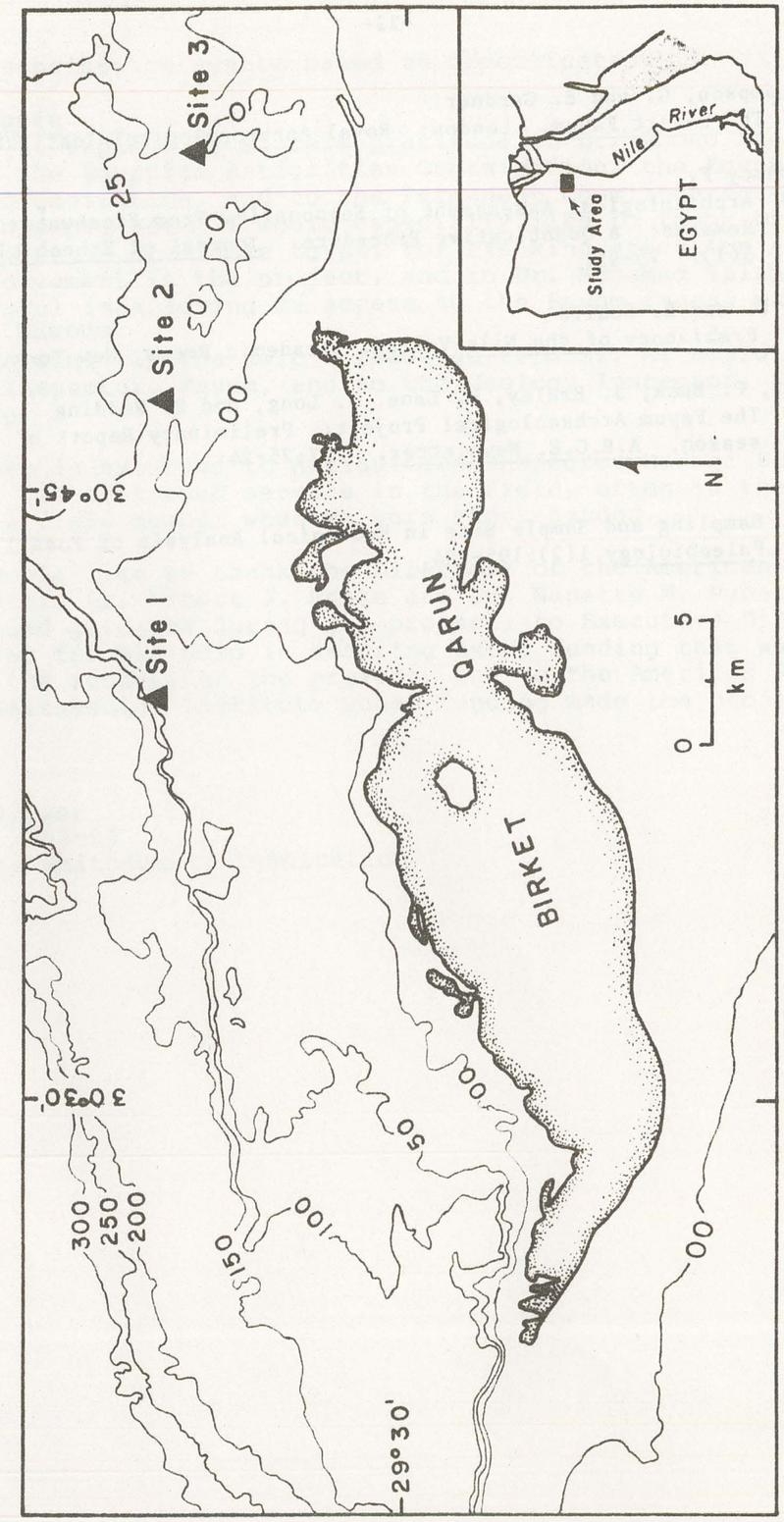

Figure 1. Map of Fayum Depression showing location of sites.

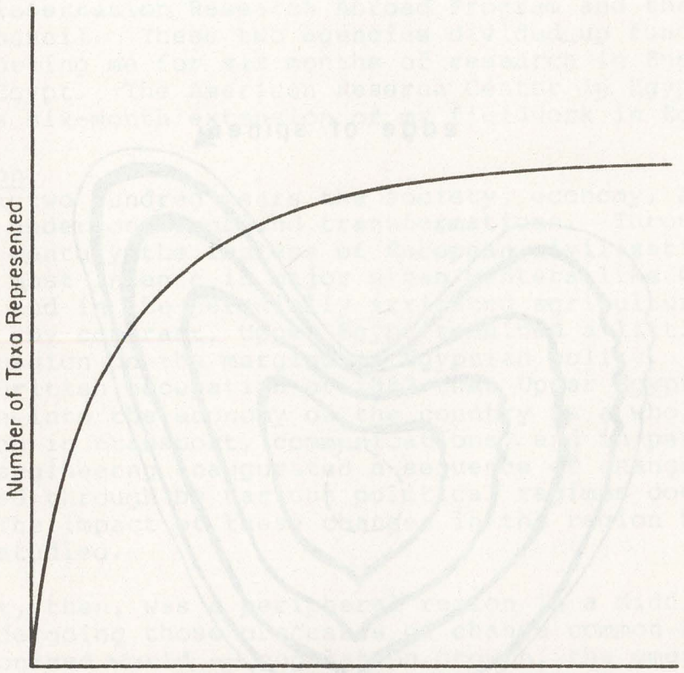

Figure 2. The curve plotted rises steeply at first and then levels off. This reflects the fact that common taxa are detected before rare taxa are first encountered. A point is reached where continued sampling provides little or no new species. The sample was then considered representative.

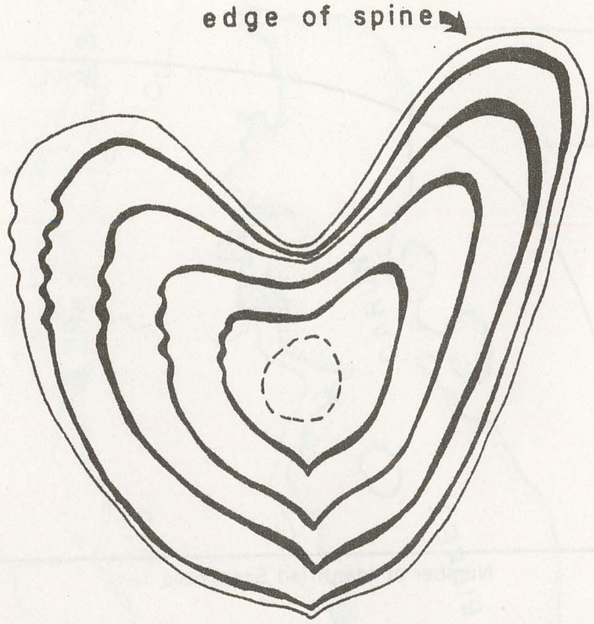

Figure 3. Schematic diagram of Clarias spine cross section, showing dark and light growth rings (after Morey 1983, Figure 2).

THE TRANSFORMATION OF THE SAID: UPPER EGYPT IN THE WORLD ECONOMY, 1882-1982

Note

This research project has been underway for two years. Original funding for the project came from grants from the Fulbright-Hays Doctoral Dissertation Research Abroad Program and the Social Science Research Council. These two agencies divided up funding between them, supporting me for six months of research in England and twelve months in Egypt. The American Reserch Center in Egypt provided funds for a six-month extension of my fieldwork in Egypt.

Introduction

In the last two hundred years the society, economy, and ecology of Egypt have undergone profound transformations. Throughout the nineteenth century the impress of European civilization and market forces was most intense in major urban centers like Cairo and Alexandria and in the perenially irrigated agricultural districts of the Delta. By contrast, Upper Egypt remained a little known, but important region on the margins of Egyptian polity. It was not until the British occupation of 1882 that Upper Egypt began to be fully drawn into the economy of the country as a whole. British intervention in transport, communications, and in particular hydraulic engineerng inaugurated a sequence of changes which has been carried through by various political regimes down to the present. The impact of these changes in the region has not been carefully studied.

Upper Egypt, then, was a peripheral region in a Middle Eastern country undergoing those processes of change common to other areas of the colonized world -- population growth, the emergence of a dual economy, urbanization, and growth without development. Although these forces affected most Egyptians directly or indirectly, their direction and momentum varied considerably from place to place. The validity of current theoretical and conceptual models of modernization offered by geographers and other social scientists to a large degree depends on an understanding of how these processes unfolded spatially. Specifically, how did their impact differ from one region to another, both within countries and throughout the Middle East. Until this question is answered, all generalizations will remain speculative.

Research Objectives

The goals of the study are twofold: first, to analyze persistence and change in the cultural geography of Upper Egypt during the economic transformation of the country; and second, to place Upper Egypt in comparative perspective. An historical geography of Upper Egypt would provide a detailed analysis on the local level of the impact of this region's integration into the global economic system. A regional case study of change in Upper Egypt would also contribute to the ongoing debates on development theory in the social sciences.

The study is being carried out in three phases which center on the

following questions:

I. A documentation of the expansion of linkages with the national and global economy:
--When and where were capitalist modes of production introduced into the region, and who were the principal agents of change?
--What were the social and ecological factors which governed the introduction of commercial agriculture into some areas and the persistence of traditional farming in others?
--What was the sequence and intensity of growth of the transportation network?
--How did the urban system develop, and what changes took place in the internal structure of the city in response to changes in the economic base of the region?

II. An assessment of the impact of the expanded linkages on the society and economy of the region:
--To what degree did control over the distribution, allocation, and ownership of scarce resources change during the period under study?
--Did expanding levels of labor migration and trade with Cairo and Europe generate local growth or stagnation and dependency?
--Can the general failure of the region to urbanize and industrialize be attributed to (1) a dilution in the intensity of intrusive economic forces in the face of local resistance, (2) the effect of local, ecological constraints, or (3) simply an ongoing lag common to peripheral regions when compared with national cores?

III. The placement of Upper Egypt in a comparative perspective:

The manner in which Upper Egypt functioned within the national polity and economy prior to Western intrusion and how these roles changed may demonstrate that the full range of changes associated with modernization and economic integration were unevenly distributed within Egypt -- a spatial differentiation which has not yet been documented.

Regional inequalities within developing areas have been approached in core-periphery theory through the study of the relationships between metropolitan centers and subordinate peripheral regions. Far greater weight, however, is given to decisions at the center to the neglect of intricate local patterns of adaptation, acceptance and/or rejection in the periphery. The theory assumes that the periphery was a passive recipient of unilinear processes of "modernization", "Westernization", or even "exploitation". By contrast, diffusion theory assumes a regular and predictable diminution of forces of change from centers of innovation -- a model based at its root on trust in the power of "friction of distance".

Neoclassical economists posit that the breakdown of barriers to factor movement -- increasing trade links, establishment of a free labor market, and the emergence of a cash-based economy -- will eventually lead to a convergence of levels of development between the more advanced core areas and more backward regions. Radical theorists argue the contrary. They claim that as backward regions

are drawn into the national and international economy, unequal exchange relationships tend to exacerbate interregional disparities. The experience of Upper Egypt in the last hundred years provides a testing ground for these differing hypotheses:
--How completely was Upper Egypt tied into the national economy? Were barriers to factor movement successfully broken down, or did residual barriers remain?
--Did levels of development between Upper Egypt and the rest of the country converge or diverge during the period under study? What were the patterns of urbanization, industrialization, and regional income distribution?
--Does the Upper Egyptian case more clearly support the models posited by neoclassical theorists or by radical theorists?

Both common sense and reevaluations or theories of modernization suggest a far more complex set of possibilities rooted in local ecology, culture, and custom which is expressed spatially in the existence of regional imbalance in all nations.

Research Completed

A. England: The months of January through June 1982 were spent in England. The most important archives consulted were the Public Records Office, especially the Foreign Office Files for Egypt and the Map Collection, the Official Publications Library of the British Library and the Map Collection of that instituion, the Map Collection of the Royal Geographical Society, the Private Papers Collection of St. Anthony's College, Oxford, and the Middle East Documentation Centre at Durham.

During this period considerable quantities of cartographic and statistical data were collected, permitting the reconstruction of patterns and sequences of the extension of perennial irrigation and transport and communication links. Commercial and political reports of the British colonial period were also consulted.

B. Egypt: Archival and Library Research

1. The Egyptian Geographical Society: This library is one of the great unsung resources for students of Egypt in the 19th and 20th centuries. It contains books, journals, travel accounts, censuses and official reports on Egypt during the last two centuries which is unrivalled anywhere. I have found English materials here which were not present in the British Library. The staff is very helpful and cooperative. The bulk of my library research has been carried out here. I have accumulated much valuable material dealing with administration, agriculture, irrigation, population, and infrastructural development.

2. The American University in Cairo Library: This library also contains a good collection of primary and secondary sources on modern Egypt. It is run like an American university library with free access to the stacks and has a good photocopying service.

3. USAID Reading Room: This reading room, located in the USAID offices in the Cairo Center Building, contains many useful

up-to-the-minute reports on ongoing projects in Egypt. It houses publications from Egyptian ministries which include regional planning survey data which has proved important to my study.

4. National Research Center: Egytian scholars working at this institute in the Kitkat section of Agouza were kind enough to let me read several as-yet unpublished articles dealing with recent population and migration trends.

5. Dar al-Handasa Consultants, Inc.: This company has carried out research on regional problems under contact from the Ministry of Planning. Officials of the company have been kind enough to make available to me regional income data which will be of great value to my economic analysis.

C. Egypt: Fieldwork

The past six months have been spent in the field in Upper Egypt under ARCE sponsorship. I based myself in Luxor for most of the field period, but travelled extensively throughout the Nile Valley in Egypt, visiting markets and conducting interviews (see Table I). Fieldwork consisted for the most part of conducting interviews with people from as wide a variety of occupations as possible. I attempted to obtain a variety of occupational histories in order to determine the strategies used by individuals and by families as economic units to contend with changing economic circumstances. I also collected information on the spatial structure of Upper Egypt's settlement and economy. This included surveys of periodic markets, new industrial projects, and intra-regional trade. This is original data which will figure importantly in the dissertation.

Table I: Sites of Market Visits and Interviews

Aswan	Naqada
Daraw	Karnak
Kom Ombo	Dishna
Idfu	Balyana
Esna	Sohag
Luxor	Minia

One of the phenomena which has become progressively more apparent, if only intuitively, during the course of fieldwork in Upper Egypt is the stength, vitality, and persistence of preindustrial patterns of circulation and exchange. Despite great changes in the man-land ration, levels of productivity, increasing levels of interaction with Cairo, and the proliferation of industrial goods, both Egyptian and foreign, in the region, old exchange patterns persist. Long-established caravan routes with the Sudan still operate, as do the local market systems. Despite a shift out of traditional occupations by much of the population, preindustrial production systems coexist with modern forms. While most of the data so far collectd remains in raw form, it is likely that much of the dissertation will focus on the interaction between the old and new systems of exchange in Upper Egypt.

The extensive data compiled during the course of research in England and Egypt will be subjected to computer-assisted analysis in the coming year. Enough time-series data exist to carry out detailed analysis of population change and movement, changes in the urban hierarchy, cropping patterns and land use, and the development of the transportation and irrigation infrastructure. This in conjunction with data on areas of persistence and change in the exchange networks of the region will form the framework for a coherent historical geography of Upper Egypt.

Paul W. Blank
ARCE Fellow 1983-84
Funded by USIA

ARCHAEOLOGY AND THE DECAY OF MUDBRICK STRUCTURES IN EGYPT I: WATTLE AND DAUB

An important key in unravelling the intricacies of archaeological stratigraphy is the study of taphonomy or the decay and deposition of modern materials analogous to those used in antiquity. This involves an interdisciplinary approach encompassing ethnoarchaeology (David, 1971) geoarchaeology (Butzer, 1982) and experimental archaeology (Coles, 1973).

Wattle and daub construction precedes the use of mudbrick in Egypt by at least a thousand years (Spencer, 1979: 5) and remains an important building technique to this day (Fakhouri, 1972: 18). In modern times wattle and daub structures or zareebas are still in use as pens for animals, storage areas, or outdoor kitchens (op. cit.).

In wattle and daub constructions bundles of reeds or sticks are placed upright at the four corners of the structure as a framework to support reed matting (figs. 1 & 2). Additional reed bundles or sticks may be used as buttresses, columns or doorposts. The matwork is tied to the frame and then plastered with local alluvium and smoothed over. The plaster coating is generally 3 cm. in thickness or less and the walls are battered to counteract horizontal thrust (McIntosh, 1974).

The rate of decay of a wattle and daub structure is dependent upon its orientation, upkeep, location and climate. Similar buildings in sub-equatorial Africa are projected to have a maximum life span of seven years (McIntosh, 1974: 163) and may undergo several stages of utilization depending upon the condition of the structure (David, 1971).

Decay results from cracking, splitting and spalling, particularly at the base due to the mobilization of salts by capillary groundwater and at the corners from abrasion and lack of cohesion (McIntosh, 1974: 162).

An abandoned zareeb structure, once used as a bakery, and now in an advanced state of decay was observed at Abydos (pers. obs.) (I would like to thank Dr. David O'Connor and the Pennsylvania-Yale Expedition to Abydos for the opportunity to study this structure during the course of the excavations.) This structure (figs. 1 and 2) had suffered collapse as the result of the rotting of the reed foundations and the force of heavy rains. This caused one wall to collapse inward which resulted in the displacement of the rest of the walls. Extensive areas of the mud plaster coating had spalled off or were washed away and only a thin screen of mud deposited around the base (fig. 3). The deposit at the base consisted of several thin laminae of fine silt interbedded with less homogenous material from the collapse of the plaster (fig. 4).

Two years later the hut had been totally demolished and no trace remained other than some fragments of the rope lashings and

brickbats from the bread oven. The deposit at the base of the structure had largely been reworked into the ground surface and the matting pulled up for fuel.

Wattle and daub structures destroyed by fire are only slightly better in the archaeological record. An experimental burning of a fairly substantial wattle and daub house in Eastern Europe yielded surprisingly little in the way of archaeologically recoverable materials (Bankoff, 1979). Burnt daub retrieved from the debris of the burnt structure amounted to less than one percent of the total amount of mud plaster used in construction (Bankoff, 1979: 13).

The absence of such material from the stratigraphic record has proven to be one of the great problems in Predynastic archaeology. Wattle and daub was in all probability the standard type of domestic architecture in the Predynastic as suggested by the el-Amrah house model (McIver and Mace, 1902).

Few actual examples survive, however traces of such structures have been preserved in the dry gebel at Hemamieh (Brunton and Caton-Thompson, 1928: 44), or when foundation trenches were cut into a hard material as at Hierakonpolis (Brunton, 1939) or Western Thebes (Holscher, 1939; Ginter et. al., 1979).

More recent excavations at Hierakonpolis (Hoffman, 1982) have provided us with a number of interesting predynastic zareeb structures. In the "Gerzean Town" of "Locality 29" a group of houses with foundations cut into the marl substrate were found (op. cit.: 6-14). An additional structure was discovered in the "Fort Wadi" or "Locality 11". Although the excavation report suggests that this habitation was originally a "tent" (op. cit., 20-22), the evidence points to a more permanent construction.

The floor of the structure is of particular interest in determining the nature of the building. A deep channel to the southeast appears to have been the foundation trench for a wattle and daub wall, and the cracks in the floor appear to be removal channels from the preparation of a level floor surface rather than mud cracks. The acacia beam in the center of a structure provides us with a means of determining the approximate size of the original structure (fig. 5). Lastly, the bits of rope matting found in this context may have come from the bindings of the structure rather than basketry (Hoffman, 1979: 20).

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ARCE Fellow 1982-83
Funded by the Smithsonian Institution

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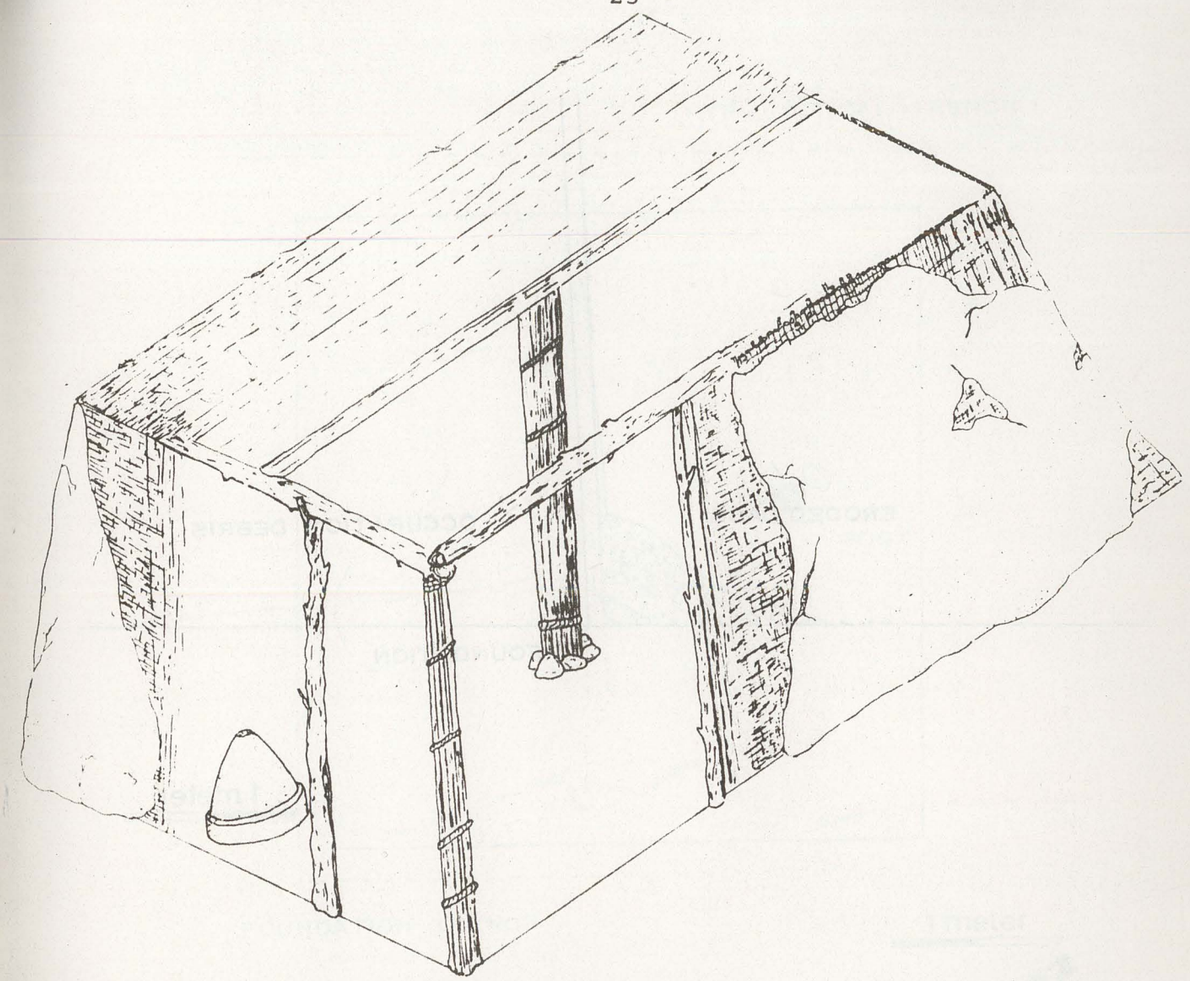

fig. 1. Reconstructed isometric drawing of a wattle and daub structure observed at Abydos (1979).

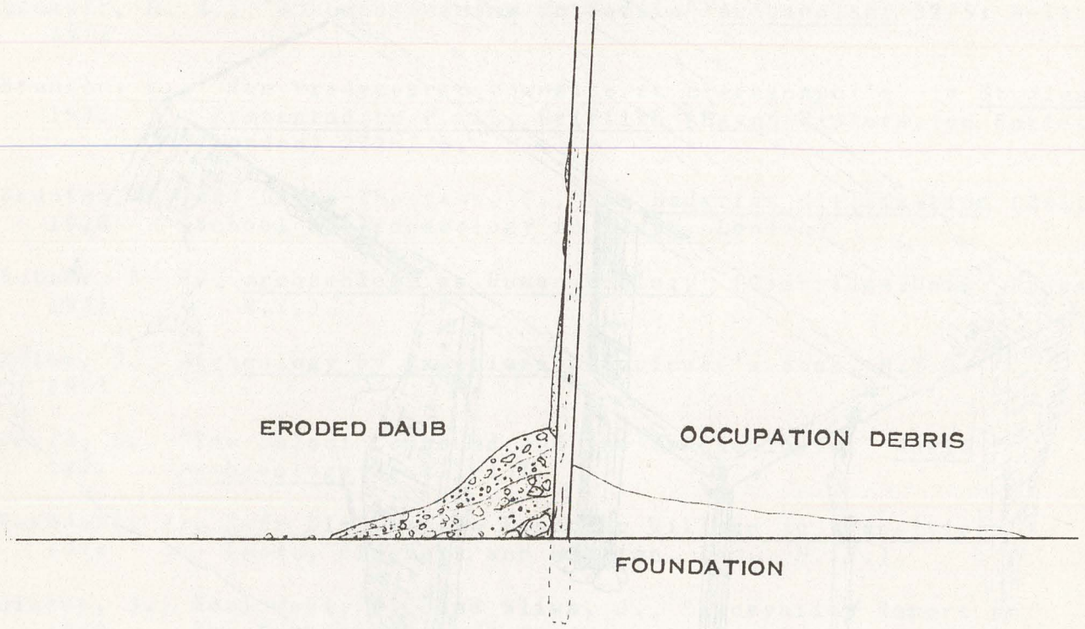

fig. 4 Schematic cross-section through a decayed wattle and daub structure based on observations made at Abydos (1979).

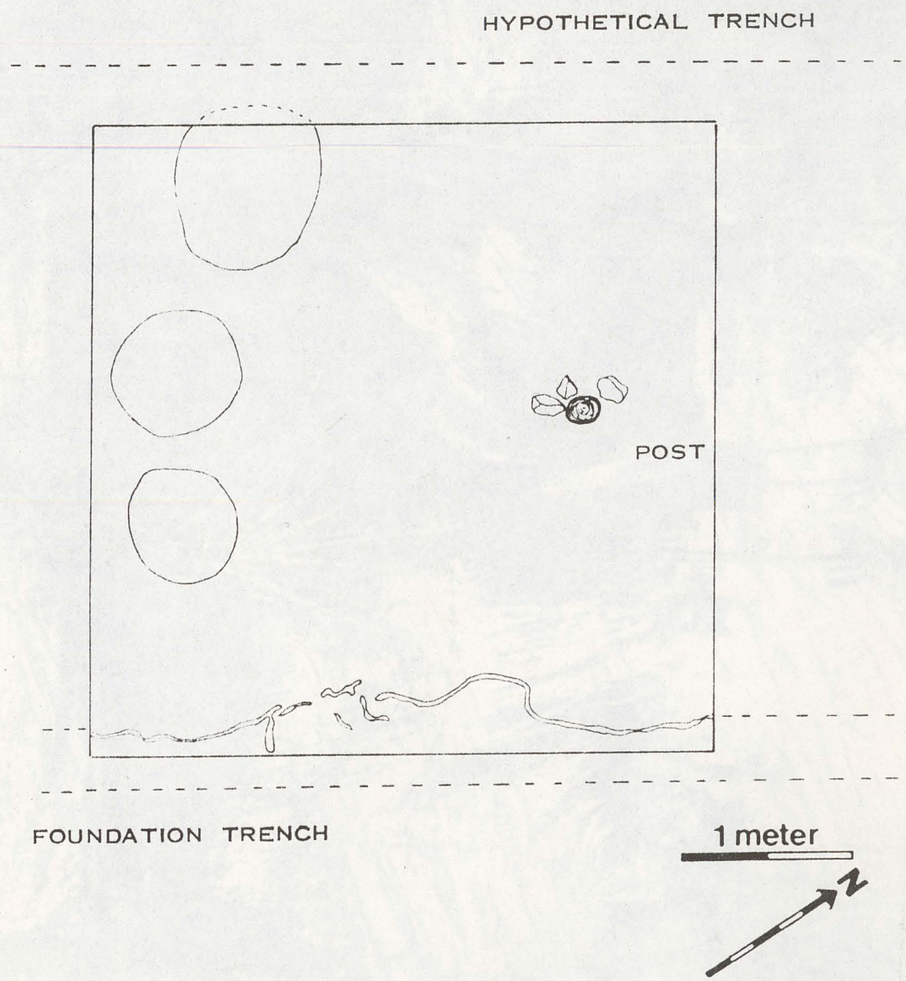

fig. 5

Plan of structure in Square ON-OE, Locality 11 C at Hierakonpolis showing foundation trenches for a wattle and daub structure.

fig. 2 Collapsed wattle and daub structure at Abydos. Note the remaining daub at lower left.

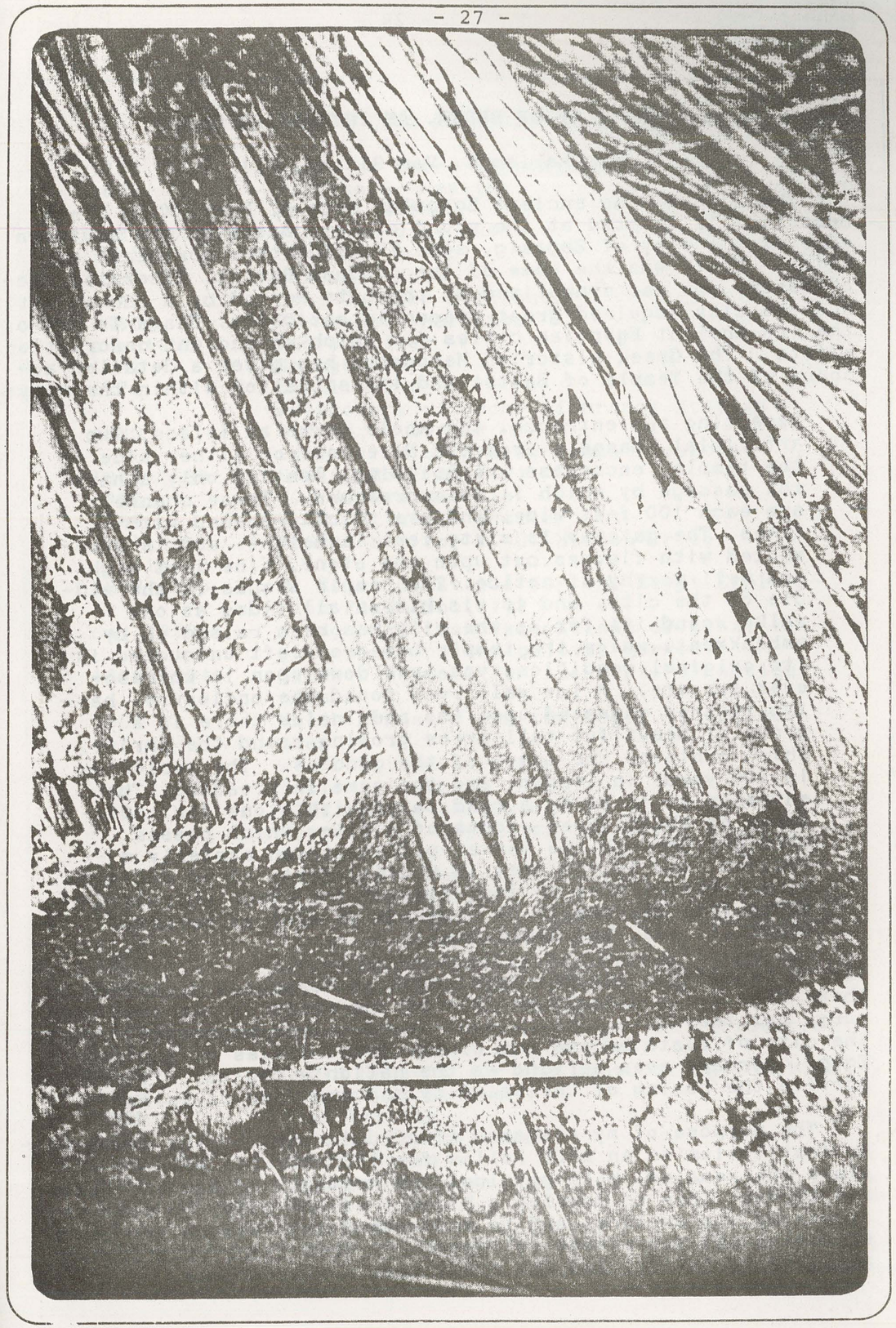

fig. 3 detail of collapsed structure (scale is 50 cm.)

THE CITY OF BASTA, AN INTERIM REPORT

by Charles C. Van Siclen, III

The site of the ancient Egyptian city of Basta (the Greek Bubastis) is located at the mound of Tell Basta on the southern edge of the city of Zagazig, some 77 kilometers northeast of Cairo. Basta was the home of the goddess Bastet, literally She-of-Basta, who was symbolized in the Late Period by a sacred cat; and the city acquired great renown in antiquity. Basta is one of the few ancient Egyptian cities for which an ancient description exists. The Greek historian Herodotus has given a detailed account of the Temple of Bastet and its situation within the city:

> Excepting the entrance, the whole forms an island. Two artificial channels from the Nile, one on either side of the temple, encompass the building, leaving only a narrow passage by which it is approached. These channels are each 100 feet wide, and are thickly shaded with trees. The gateway is sixty feet in height, and is ornamented with figures cut upon the stone, nine feet high and well worthy of notice. The temple stands in the middle of the city, and is visible on all sides as one walks round it; for as the city has been raised up by embankment, while the temple has been left untouched in its original condition, you look down upon it wheresoever you are. A low wall runs round the enclosure, having figures engraved upon it, and inside there is a grove of beautiful tall trees growing round the shrine, which contains the image of the goddess. The enclosure is 200 yards in length, and the same in breadth. The entrance to it is by a road paved with stone for a distance of about three-eights of a mile, which passes straight through the market-place with an easterly direction, and is 400 feet in width. Trees of an extraordinary height grow on each side of the road, which conducts from the temple of Bubastis to that of Hermes. (Book II, 138, tr. Rawlinson)

The ruins of this ancient town, much as Herodotus described them, were still clearly visible at the start of the last century; but they have since almost completely disappeared. While the city of Basta became one of the great cities of ancient Egypt, perhaps even serving as the nation's capital, it did not survive the coming of Christianity and the rise of Islam.

The purpose of my research (funded in part by the Smithsonian Institution as an ARCE Fellow for 1982-83) has been to explore the remains, both physical and textual, of ancient Basta; and through them to develop a history of the city, to examine facets of its culture, and to understand the reasons for its expansion and subsequent collapse. At this stage, conclusions are only tentative, and the study remains incomplete.

Chart 1. THE MODERN EXPLORATION OF TELL BASTA

1798	Malus de Mitry and engineer Fevre
1802	William R. Hamilton
1812-1828	Jean J. Rifaud
1824-1827	Giovanni d'Athanasi
1831	Giuseppe Acerbi
1838-39	Nestor L'Hote
1842	John Gardner Wilkinson
1860	F. Auguste Mariette
pre-1866	Andre Guiter
1871	George Ebers
1878	E. Allemant (discovery of cache of bronze statues)
1880	Alfred J. Butler (discovery of Graeco-Roman treasure)
1881-1898	Urbain Bouriant (?)
1882	H. Edouard Naville
1885	W. M. Flinders Petrie
pre-1885 & later	Clarke-bey for F. G. Hilton Price
1887-1889	H. Edouard Naville for the Egypt Exploration Fund (Society)
ca. 1890	(fragments from excavations of great temple appear on antiquities market)
1892-1894	Georges Foucart for the Dept. of Antiquities
1902	Salah Mohammed for the Dept. of Antiquities
1905	W. M. Flinders Petrie
ca. 1905	Annie A. Quibell
1906	(Tell Basta treasure) Campbell C. Edgar for the Dept. of Antiquities
1913	(William) Frank A. Rattigan
1920s	Georg Steindorff
1920s	Hans G. Evers
1925	(tomb of Viceroy Hori II)
1929	Deutsche Hermopolis Expedition
1931	Ost-Delta Rand Expedition (DAIK)
1937	Sondage, Dept. of Antiquities
1939-1944	Labib Habachi for the Dept. of Antiquities
1947	(air photograph of the site)
1948	Labib Habachi for the Dept. of Antiquities
1955	Bernard V. Bothmer
1955	Jean Yoyotte
1960	Tadeusz Andrzejewski
1961-1967	Shafik Farid
1967	Mohammed Mochsen
1967-1976(?)	Ahmed el Sawi
1974	Mounir Basta
1977-present	Mohammed Bakr

The initial part of the work consisted of discovering exactly who had visited and explored Tell Basta, the mound of the ancient city. Prior to the arrival of the Napoleonic Expedition in 1798, the existence of the city had been known only through various literary accounts, primarily in Greek, Coptic, and Arabic. From the last years of the eighteenth century, the site became the subject of repeated visits by explorers, travelers, collectors of antiquities, and archaeologists (chart 1). The records of their visits, their accounts of the site and of the work which they performed there, as well as the artifacts which were recovered from the mound (and which continue to be recovered) provide the raw data which helps to define the history and culture of Basta. From among this mass of data come two major types of source materials: (1) descriptions of the site and its monuments and (2) the artifacts.

The description of the physical remains on the site stems primarily from three major field expeditions at Tell Basta: that of the Egypt Exploration Society (1887-89), that of the Department of Antiquities (1939-1944, 1961-1976) and that of the University of Zagazig (1977-present). To varying degrees, the results of these excavations have been published, but there are significant gaps in publication, and the publications are not always ideal. With respect to unpublished materials in particular, I have been able to consult the records of the late Shafik Farid, who excavated at Tell Basta in the early 1960s. In addition to these formal excavations, various accounts, especially that of the early visit by Sir Gardner Wilkinson, provide valuable information about the topography of the site (fig. 1).

The physical remains of the monuments on the site, its tombs, temples, palaces, canals and streets, give only part of the picture; and it is the artifacts discovered there which flesh out this bare skeleton. In addition to the objects discovered by the major excavators, the site was the source of much material generally removed without much formal record. In particular, there are two major collections of such materials. One is that of F. G. Hilton Price, a nineteenth century collector who obtained over a thousand objects from the site. (Unfortunately, his inadequately published collection was dispersed by sale in 1911 two years after his death, and only a few objects can now be traced.). The other collection is that of the Cairo Museum. There, some 400 pieces removed from the mound over the last century illustrate various aspects of the life of the ancient city. Holdings of various other museums worldwide help to supplement these two collections so that there is a fairly complete picture of the material wealth of the city.

The archaeological remains help to build a picture of life in ancient Basta and to tell the city's history. The fact that a great many of the objects are inscribed provides indigenous contemporary texts which define still further the life of the city. These native sources of texts may be supplemented by various external literary references which record the existence of Bas-

Chart 2. THE MAYORS OF BASTA IN THE MIDDLE KINGDOM

Tomb	Name and parentage	Date
1	Renseneb	early Dyn. XII (?)
5	Antef	
12	name lost, son of the Lady Nefert	
(2)	(the Lady Nefert, daughter of Antef)	
7	name lost	
	Khakaureseneb, born of Mut	late Sesostris III
3	Maheshotep, son of Sithathor	Dyn. XIII (?)

Stylistically, Tomb 3 is the last mayoral tomb in the Middle Kingdom cemetery. A daughter of Maheshotep seems to have been named Iunisutekh.

Two offering tables from early in the sequence list addition family members, but their relationships are not easily discerned:

1503, Sitim, her mother Khem and her grandmother Menekhet

1511, 5 "mayors": Akhuantef, Meket son of User, Antef son of Maat, Tchebu son of Antef, Khety born of Merytii (Is the Antef mentioned here the owner of Tomb 5 ?)

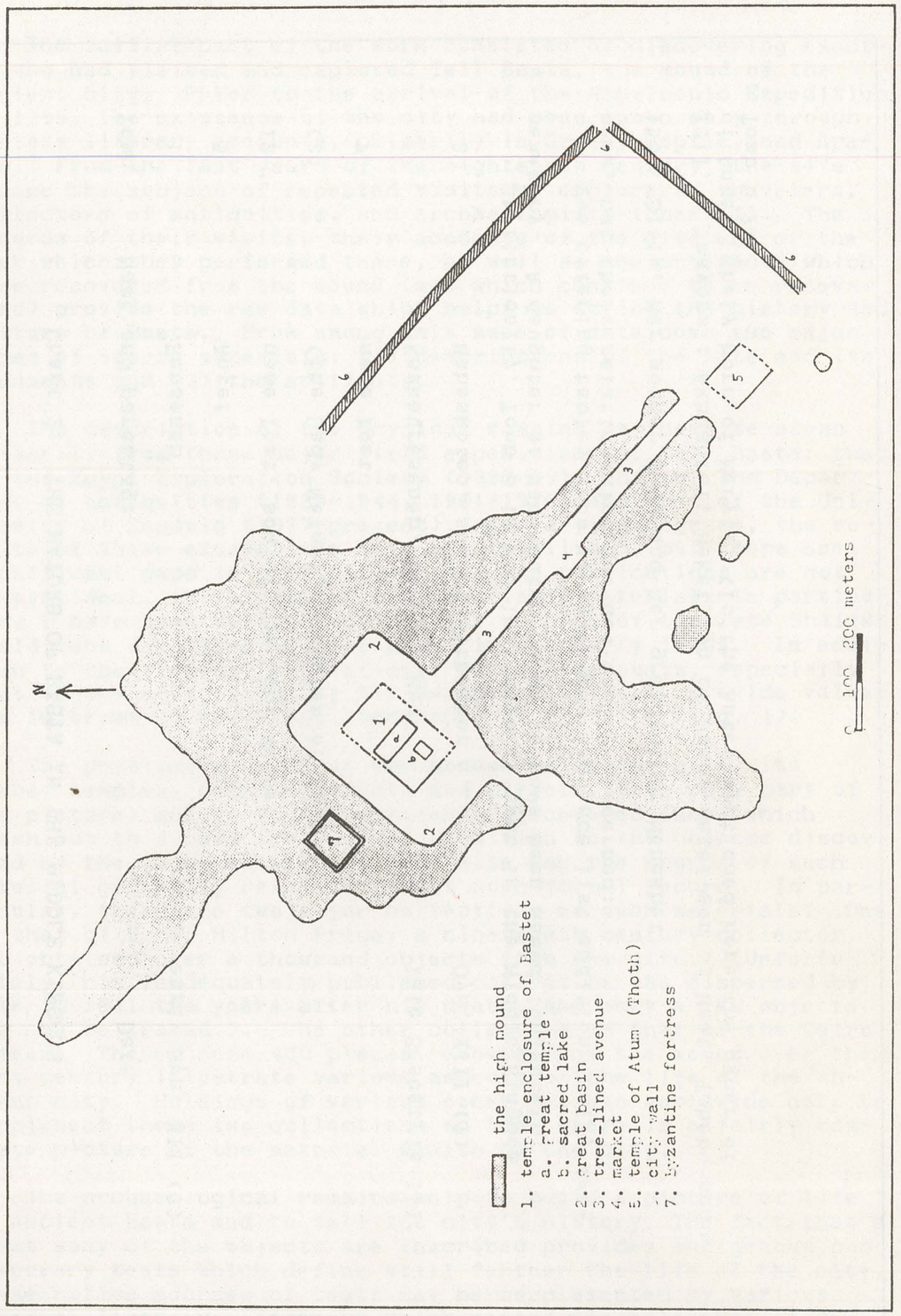

Fig. 1. The topography of Basta after the Wilkinson map, ca. 1842.

ta. The city is mentioned in Egyptian texts from the Old Kingdom, and then through all later pharaonic history; it appears in Greek and Latin texts, Coptic manuscripts, and in Arabic documents. The range of these sources is wide, going from the formal history of Herodotus to a demotic fairy tale to Greek letters on papyri mailed from ancient Basta to mere annotations on a list of Coptic bishoprics.

The archaeological and literary sources must be interpreted in their specific Egyptian context. Thus other urban sites of ancient Egypt were examined to see both the similarities and differences between those cities and Basta. In particular the cities of Amarna, Hermopolis and Thebes were chosen as providing for comparison varying patterns of development. Similarly an attempt was made to understand the varying patterns of hellenization which took place in each of these cities. Furthermore, the practice of burying mummified animals in cemeteries and the dispersal of the cult of the goddess Bastet throughout Egypt were pursued as special facets relating to the growth of the city's religious importance.

It is now possible to trace in some detail the history of the city of Basta from its rise in the Early Dynastic Period to its decline early in the Islamic Period, a span of nearly four millennia. Furthermore, one can suggest reasons for its rise as a major center and speculate as to its subsequent fall into decline.

During the Graeco-Roman Period, tradition held that the city of Basta was founded by the goddess Isis -- a tradition probably based upon a pseudo-etymology of the name of Basta from b3-ỉst (the ba of Isis). The first historical event seems to be a destructive earthquake in the city recorded by Manetho as happening early in the second dynasty, and a roughly contemporary grave would seem to support habitation at Basta by this date. How fast and how early the city reached a position of importance is debatable, but the goddess Bastet who comes from the city reached national prominence by the fourth dynasty. At the end of the Old Kingdom, Basta had become a major center in the eastern delta, with an extensive cemetery, temples for the cults of various reigning kings, and probably a great temple to Bastet (although no actual traces have as yet been found).

The eclipse of the Old Kingdom was undoubtedly mirrored at Basta by a similar decline, but the status of the city revived in the Middle Kingdom to which time date significant remains of a vast palace and cemetery complex. The unpublished records of Shafik Farid now allow the reconstruction of the sequence of mayors of Basta (chart 2). Even though Basta was not the capital of a nome or district itself, its mayor lived in considerable state. An analysis of the vast palace and cemetery from this time on the city's northern edge provides a picture of an orderly and prosperous community (fig. 2).

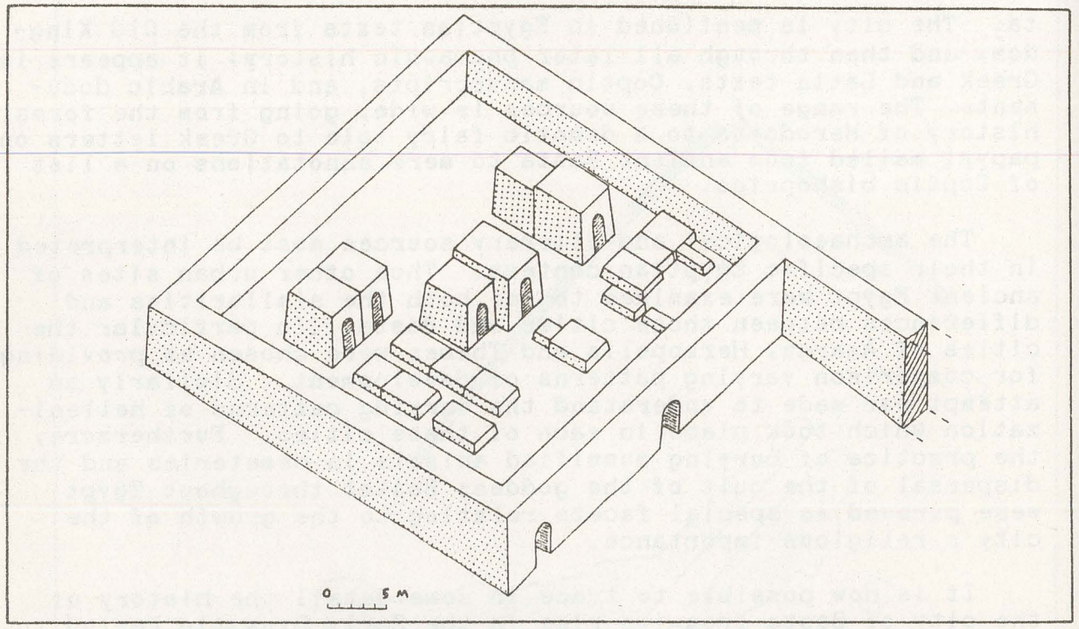

Fig. 2. Theoretical reconstruction of the superstructure of the Middle Kingdom cemetery (isometric projection).

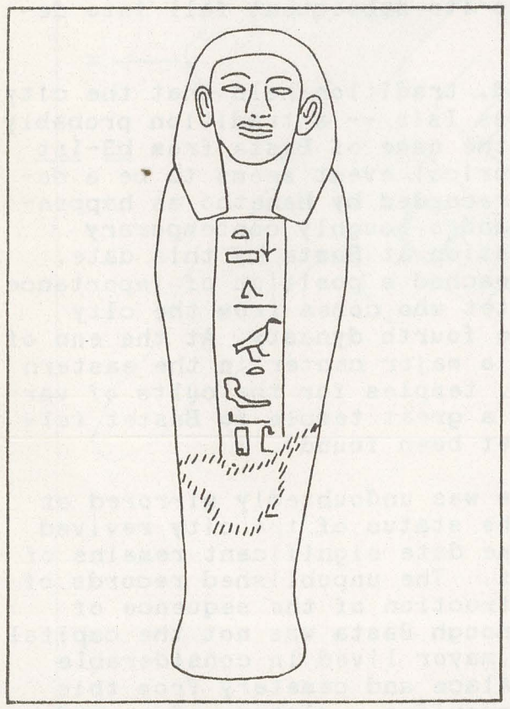

Fig. 3. The ushebti (B 61) of Iunisutesh, Dyn. XIII (?).

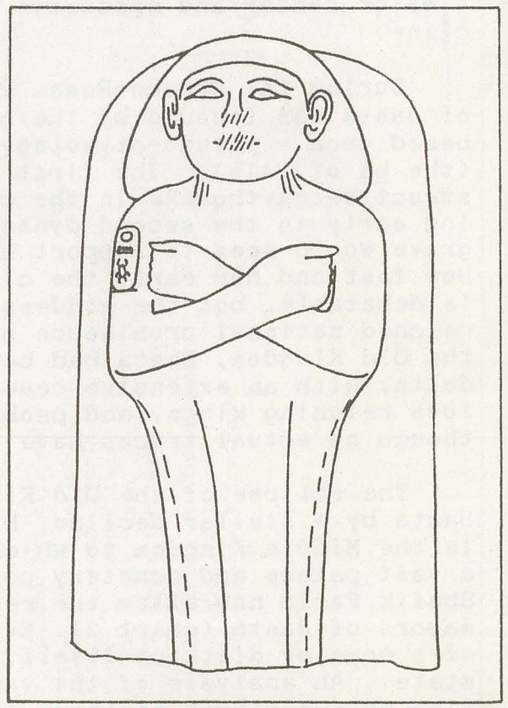

Fig. 4. The statue of Sibastet (Louvre E 11673).

The collapse of the Middle Kingdom is marked by the destruction by fire of the great palace and the appearance of various "Hyksos" artifacts and the name of their titular god Seth at the site. The evidence is sufficiently mixed so that the extact nature of the Hyksos penetration -- either peacefully or by warfare -- cannot be judged. The destruction of the palace by fire suggests warfare, but the name of the daughter of the last mayor (fig. 3) is one compounded with the name of the god Seth, a fact perhaps indicating a peaceful changeover.

During the New Kingdom, the prosperity of Basta again revived, and there is evidence of new temples, splendid tombs and costly artifacts of a rich and prosperous society. The city provided high officials of state including two Viceroys of Kush and a Vizier, but it also may have been home to a royal barber whose father had probably served in the Temple of Bastet (fig. 4). The tombs of these high officials were excavated to the east of the great temple and provide a type of family mausoleum very different from the contemporary tombs of Saqqarah and Thebes.

The major building phase of the great temple at Basta coincides with the rule of a line of "Bubastite" kings -- Egypt's twenty-second dynasty of kings named Osorkon and Sheshonk. The monuments which those pharaohs erected in what may have been their capital provided the splendor which Herodotus was later to record, and the tumbled down granite gateways of the great Temple of Bastet built by Osorkon I and Osorkon II form some of the more impressive remains of the site. The temple was cleared nearly a century ago by the Egypt Exploration Society, and its publication, while admirable for its day, leaves much to be desired. The excavators thought that the great temple was built completely of stone, the bulk of which had been quarried away. While it is true that much stone has been removed, the surviving stone elements, fragments of monumental gateways, lintels and jambs, architraves and columns, suggest that only parts of the temple were of stone, and that the rest of the building was of mud brick (perhaps with some stone lining on the interior walls). The first great room recognized by the excavtors seems in fact to have been the remains of the granite gateway which led into the enclosure of the temple (fig. 5).

The closing centuries of the first millennium B.C. saw the rise of foreign rulers in Egypt -- Kushites, Persians, Greeks, and finally Romans. While the former two seem to have had little effect upon Basta, the influence of the Greeks and their successors was more marked, and the physical remains at Basta change noticeably from their arrival. During the Graeco-Roman Period, the native Egyptian population seems to have left little in the way of culturally distinct remains, and the disposable wealth of Basta took the form of objects hellenizing or of hellenistic origin. Since the Greeks accepted the local gods, the great Temple of Bastet seems to have continued to function, and it seems to have remained active until at least 300 A.D. The cult of Bastet under her Greek name Bubastis flourished throughout Egypt.

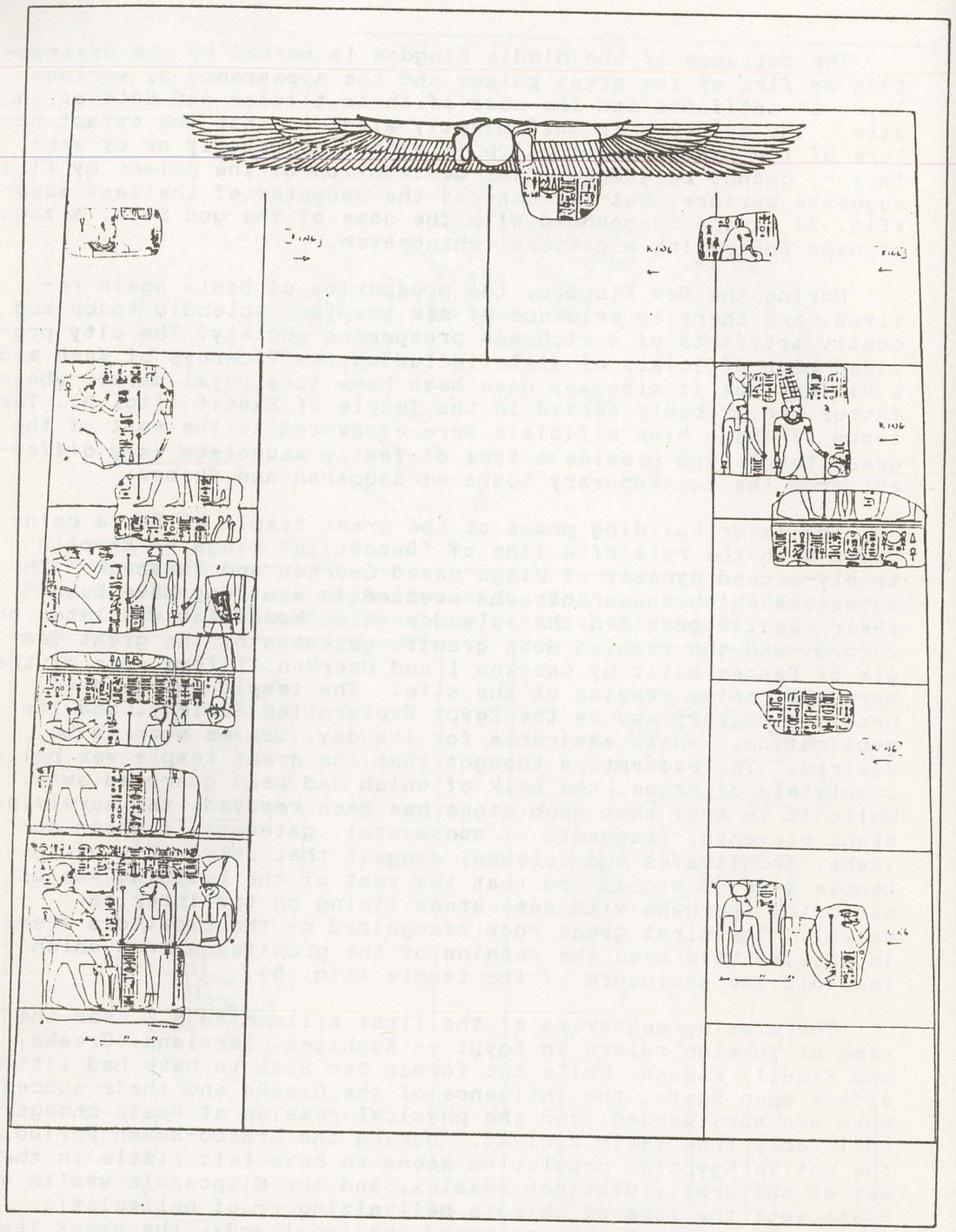

Fig. 5. The decoration of the propylon gateway of the enclosure of the Temple of Bastet (Osorkon I).

It seems clear that, especially in the Roman Period, the fortunes of Basta were on the wane, and the rise of Christianity and the subsequent closing of the pagan temples in the fourth century may have hastened the city's end. While it seems likely that a Roman or Byzantine fortress topped the city mound at the start of the Islamic conquest, there is no evidence of fighting there. The Arab general Amr ibn el-As seems to have beseiged the city of Bilbeis to the east of Basta at the end of the canal to the Red Sea, and bypassed Basta as a place of little importance. The city had also once been the site of a Coptic bishopric, but it was later transferred to a monastery near Cairo, and one cannot be sure what still functioned on the site by the close of the first millennium. There does not seem to have been any Islamic occupation at Basta. The adjacent city of Zagazig which is now engulfing the site was only founded in the 1830s.

One can examine the rise and fall of Basta in three areas: its economic importance, its strategic or political significance, and its religious role. Success in all three of these areas was responsible for Basta's growth, and the subsequent collapse in each of these areas brought about Basta's decline.

The site of Basta lay anciently upon the Pelusiac branch of the Nile and only a few kilometers from the Tanitic branch, at a point where overland traffic through the Wadi Tumilat crossed into the delta. Thus from an economic point of view, Basta's success derived from it being at a juncture of trade routes. The later operation of a canal from the Nile Vally to the Red Sea through the Wadi Tumilat may have benefited the city, but ultimately this canal seems to have given rise to the neighboring town of Bilbeis as a more successful economic competitor.

In the Old Kingdom, Basta may well have served as a major frontier outpost on the eastern edge of the delta. By the fifth dynasty, it took importance in the propagation of the royal cult with temples for the pharaohs Pepi I and Teti. This regional importance of the town was maintained throughout later history dispite Basta's not being the capital of a nome or district (administratively in the Middle Kingdom it was a part of the nome of Heliopolis), but its mayors must have been very important men. Politically, as a political center of the twenty-second dynasty, it was lavished with monuments, and in the subsequent breakup of the Egyptian kingdom, it remained the seat of a local principality. The changing patterns of administration under the Ptolemies and later the Roman governors would have weakened the political importance of the city, but it retained some strategic value. The Ptolemies stationed a troop of cavalry in the area, and the great fortress constructed atop the mound would have surveyed the surrounding territory.

Combined with its economic role, and its political or strategic importance was Basta's role as a religious center. The goddess Bastet had reached national prominence by the start of

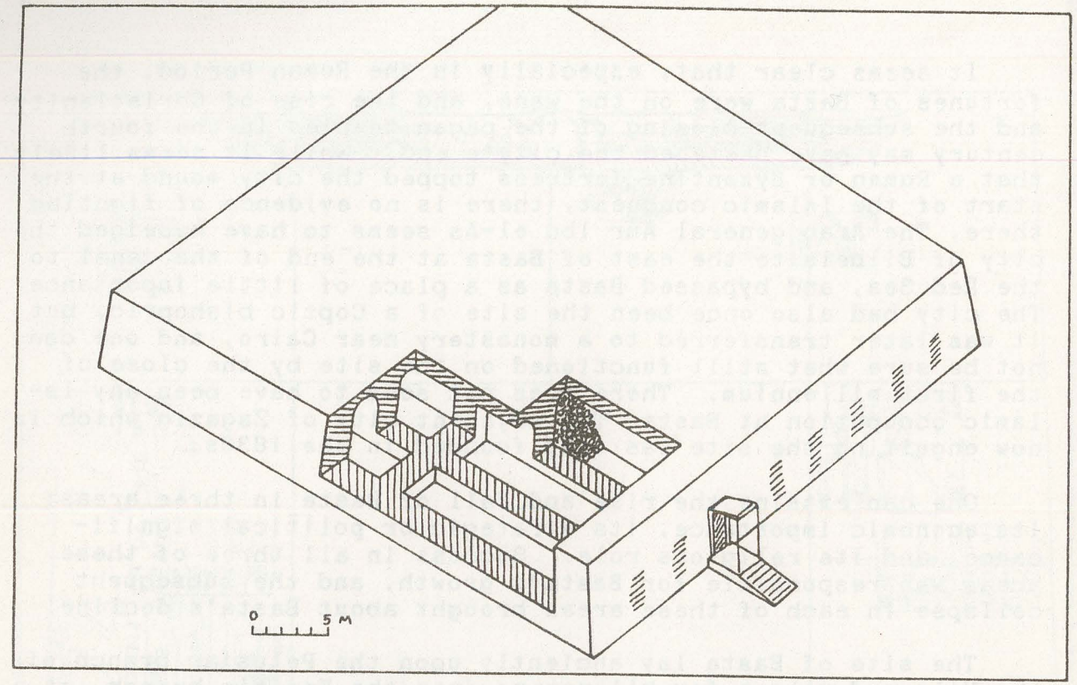

Fig. 6. Theoretical reconstruction of an animal cemetery during the Late Period (isometric projection).

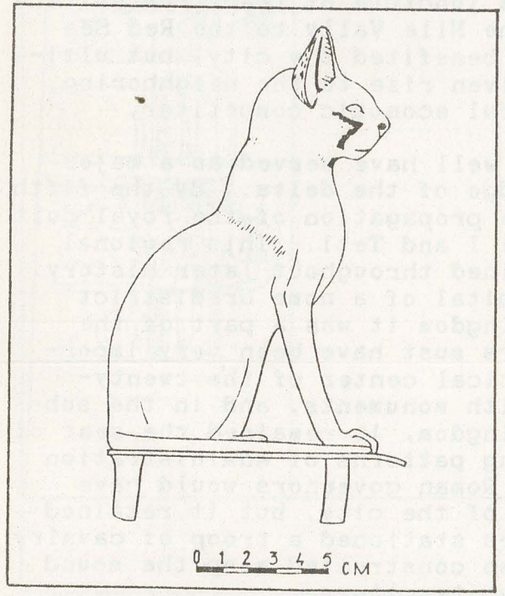

Fig. 7. A bronze cat (B 846) from an animal cemetery, Late Period.

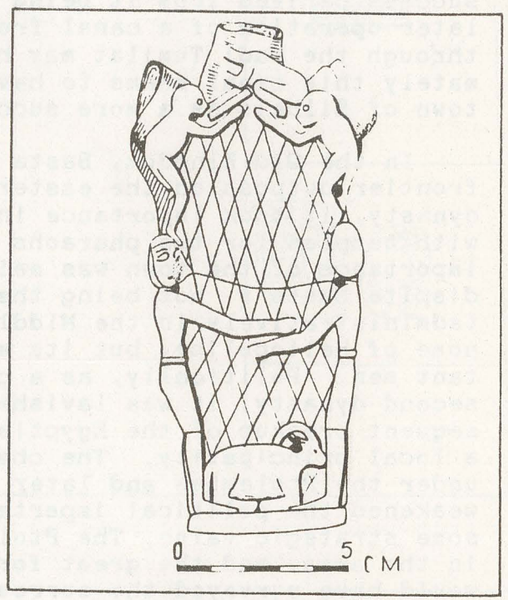

Fig. 8. A faience votive piece (B 909) from an animal cemetery, Late Period.

the Old Kingdom. It is not surprising that the city for which she was named would be one of the centers of her cult. So long as the cult endured, there was a reason for the city to exist: to service the temple of the goddess. Especially in the Late Period, the great festivals of Bastet were of national importance, and the city served as a place of pilgrimage. When the old gods finally were abandoned, the holy nature of the city vanished, and its role as a cult center too disappeared.

As indicated by Herodotus in his description of the site, the focal point of the city was the great Temple of Bastet located in the center of the town, surrounded by walls and canals. Proceeding from the temple towards the south was a great paved avenue lined with trees and bordered by a canal. All around by the Later Period had arisen the mound of the city, each new house being built over the decayed mud brick remains of its predecessor and even over the ancient cemeteries. This artificial mound had grown so that the houses overshadowed the great temple whose ground level rose much more slowly. To the north of the city in what had once been virgin land lay the vast sepulchers of the mummified cats and towards the south was a new city wall in mud brick. While we know something of the topography of the city towards the end of its existence, the growth of the city over time is still difficult to establish.

In the Late Period, the development of the practice of burying animals in cemeteries had an impact upon the city of Basta. For cities near the edge of the desert, these animal cemeteries could take the form of underground catacombs, but in the delta with the lack of convenient rock formations, they took a different form: a series of buildings composed of parallel vaulted mud brick chambers (fig. 6). These structures (which ultimately looked somewhat like large mastaba tombs) were oriented with respect to the great temple. A building would start with several chambers. As each chamber was filled with mummified cats and votive objects (figs. 7 and 8) it was sealed, and interments were started in an adjacent chamber. When a building was full, it was either enlarged or a new structure was built. Surrounding the animal cemeteries was a vast area of workshops where the votive objects for the faithful were manufactured.

On-going work centers around two separate projects: preparation of the manuscript about the excavations of Tell Basta undertaken by the late Shafik Farid (in agreement with his family), and a formal history of the city of Basta. The work on the former is well in hand, but that of the latter will require still more study.

While I was at work in Egypt, two figures who excavated at Tell Basta and were instrumental in my research, Labib Habachi and Shafik Farid, passed away. They will be sorely missed. Among the many others who provided assistance, I would especially like to thank the staff of the Cairo office of ARCE.

ARCE Fellow 1982-83
Funded by the Smithsonian Institution

THE EL-AMARNA BOUNDARY STELAE PROJECT:

A PRELIMINARY REPORT

The El-Amarna Boundary Stelae Project, staffed by the writer as its field director and also by Charles C. Van Siclen III, began on 18 April 1984 and ended some five weeks later, on 25 May. During that time the expedition worked at the sites of all the stelae carved in the cliffs on both the east and west side of the Nile and surrounding the site of Akhet-Aten, the cult center which Pharoh Akhenaten built in his attempt to impose on ancient Egypt the worship of the divine solar disk, the "Aten", at the expense of traditional deities. By the season's end, 80% of the field work needed as the basis for a comprehensive new edition of these monuments had been completed. Earlier copies of the texts had been checked and corrected, plans of the stelae emplacements with their adjoining statuary had been drawn, and a photographic record of each site had been made.

The field work of the season began on 19 April with a survey of nine out of twelve stelae located on the east bank of the Nile. This preliminary examination allowed us to plan much of the season's work, based on the condition of each monument and the logistics of working at each site; the remaining three stelae on the east bank were similarly examined at a later date. Work at individual sites (see fig. 1) moved, in general, from north to south, beginning with the western cliff at Hawatta (Stelae J, K, L and M), its northern face (Stela N), the southeastern desert wadis (Stelae P, Q, R and S), the cliffs facing the central plain (Stelae U and V), and finally the northern headland at Sheikh Said (Stela X). Operations on the east bank concluded on 16 May, and on the following day our activities were transferred to the west bank and its three stelae. The two northern stelae (A and B), lying north and south of Tuna el-Gebel respectively, were documented in the same way as those on the eastern side of the Nile. Stela F, some twenty kilometers southward, was more of a problem. Although its general position was known on the basis of maps published by Flinders Petrie,[1] its discoverer, and by the German surveyor Paul Timme,[2] the exact position of the tablet had been lost in the more than seventy years which had passed since it was last noted. Timme, in fact, had not even seen the inscribed stump which Petrie had copied some twenty years earlier; and in the meantime, all traces of the site had been hidden by windblown sand and pebbles. Fortunately, Timme's map is accurate as to scale and includes as reference points not only major towns, but also tiny hamlets at the cultivation's edge. Careful attention to these indicators, and to the data supplied by Petrie in the unpublished notes which had been consulted by courtesy of the Petrie Museum, University College, London, was what finally enabled us to locate the site after two hot and frustrating mornings -- the identification clinched by the providential survival of the ancient road which both Petrie and Timme showed leading from the cultivation up to the low scarp of rock on which the stela was carved. Since the end of our season was upon us, however, we decided to defer any

work on Stela F until we could clear and record it at leisure. Field work was concluded on 23 May, and the expedition returned to Cairo on 25 May 1984.

As expected, the expedition's work yielded a rich harvest of textual changes to the pioneering edition of these inscriptions by Norman DeGaris Davies.[3] Of the eleven copies of the "Later Proclamation", for instance, Davies published in detail only two: Stela S (in facsimile);[4] and the main text -- excluding the minor epigraphs in the lunette -- of Stela U (in hand-copy).[5] The nine other versions were not published in extenso, but only as they varied significantly from the text as established in one or another of the primary versions used by Davies.[6] We discovered, however, that these texts were not all as homogenous in their formulation as this type of publication implies; nor, indeed, were the specifically noted variants always a faithful record of what was to be seen. Errors in spelling and arrangement were, in fact, quite common in Davie's copies (see fig. 2); and in one case (fig. 3) the text as published is garbled and unreadable because it had not been realized that the text had been recut in antiquity to correct the omission of two vital words.[7] A number of major corrections were made to the text of the "colophon" which is found only on two of the western stela (A and B).[8] One copy of the "Later Proclamation" (on Stela F) remains to be checked; but the establishing of this inscription's text can be said to be substantially complete. The corrections, trivial though most of them may be in substance, will prove cumulatively useful in tracing the development of this document and its distribution on Akhenaten's frontier monuments.

The "Earlier Proclamation" would seem to have fared better in Davies' publication: two of its three versions (Stelae K and S) are preented whole, in facsimile drawings of the texts, with the most important variants in the third stela (M) being given in the footnotes to the translation.[9] Unfortunately, even at its best, the "Earlier Proclamation" is more difficult to interpret and is more fragmentary than the "Later Proclamation". Davies, working with a text that was new to him, was best able to grasp its sense in passages which parallel one another in the several copies. His copies are by no means negligible; but in many cases he was defeated because of his inability to recognize the worn hieroglyphs in front of him. He has, posthumously, our sympathy: we ourselves are far from satisfied with the copies we obtained in 1984. But, with patience and research, it should be possible to resolve the remaining difficulties when we return to El-Amarna in 1985. As an example of what can be done with fresh collation, we offer a passage from line 13 of Stela K (fig. 4) for which, given the obscurities in his copy, Davies gave the following translation: "neither shall any noble ..... of all men who are in the whole land (say unto me)," etc. The corrected passage can now be read more fully: "neither shall any official -- (whether) among the officials of the inner circle (literally 'of praise), among the officials of the outer circle (literally 'of the outside'), among the overseers of (royal) companions (? of 'overseers of priests'?), (or) among any people in the whole land -- say unto me," etc.

Even though as much as half of the "Earlier Proclamation" will be forever lost to us owing to the many lacunae, the substantive changes already established in 1984 amplify the published account at a number of points,[10] and have yielded new meanings for other, hitherto obscure passages. The remaining cruxes are presently under study, with a view towards resolving them in the field during our next season.

Anther welcome result of the 1984 season was clarification of the status of Stela L. Discovered by Petrie in 1892, it seems to have discouraged close study before now both because of its badly weathered condition and its location, some three meters above the nearest accessible ground. Davies noted that its small size placed it outside the two main series of boundary stelae and suggested that it might not even belong to the Amarna Period.[11] In this last point he was wrong, as we discovered when we examined Stela L with the aid of a tall ladder: the mention of "Akhet-Aten" removes all doubt as to its date, and some activity by "his Majesty" was alluded to in its text. The few and scattered traces which remain do not reveal much more about its contents, but the arrangement of the text -- horizontal lines in the bottom half, vertical columns at the upper left, nothing preserved at the upper right -- is suggestive of a private memorial: the orientation of the text, and thus of the figure which could hypothetically be placed in the upper right corner of the tablet, would be toward Stela M, which is located about ten feet north of Stela L. Davies was certainly correct in separating it from the main series of boundary stelae, and although its relationship to these monuments is not completely clear, it can at least be shown to have had some connection with the fixing of the heretic capital's outer limits.

Other gains from the 1984 season went beyond establishing the text of the boundary inscriptions and encompassed the first serious examination of the monuments' architecture ever made. Descriptions of the sites by Petrie and Davies[12] are brief; and the one floor plan which Davies did publish[13] does not include one of the monument's most important features. It seems obvious that the "history" of the boundary stelae cannot rest on epigraphic data alone. The situation of each monument was therefore documented in black-and-white photographs and color slides; and the architecture was recorded by Mr. Van Siclen. As a result, the design of each stela could be combined with the textual evidence, and it became possible to go further than Davies' classification of stelae carved with the "Earlier" and "Later" Proclamations. A probable sequence for the building of these monuments began to emerge, with implications that impinged both on the growth of Akhenaten's city and of the royal family at El-Amarna.

The two earliest stelae were apparently X, at the north end (see fig. 5), and M at the south, located at the corners of the headlands which define the limits of the bay in which the city is located on the east bank of the river (see fig. 1). Both tablets are inscribed with the "Earlier Proclamation", which our collation now shows to have been dated near the beginning of Akhenaten's fifth regnal year.

This is of some importance, as it was on this date that the king announced his plans for the development of the city, and all work at the site presumably followed. Davies,[14] supported by Battiscombe Gunn, had hesistantly read "year 4";[15] others have since hazarded "year 6" as the correct date. Paradoxically, it was L.G. Leeuwenberg, a Dutch scholar who wrote about the boundary stelae from occupied Holland during the Second World War, who first divined what the correct date of the "Earlier Proclamation" should be;[16] but his ingenious argument remained a hypothesis until it could be verified by our expedition. Stelae M and X were presumably among the earliest monuments built at the new city, sometime during year five. In addition to the early text, moreover, both display the same simple architecture, featuring only the tablet located at the back of a deep niche. Meritaten, the king's eldest child, is the only one of the daughters to be mentioned n the body of the text; and she alone appears behind her parents in the lunette of Stela X (and thus, presumably, of M also), which suggests that she was the only one of Akhenaten's children who was alive when the "Earlier Proclamation" was issued.

One year later, at the beginning of Akhenaten's sixth year, the king paid a visit to "the southeastern mountain of Akhet-Aten" (the site of Stela M) and there issued the "Later Proclamation", fixing the city's dimensions between frontier markers which were to be distributed on the east and west sides of the river. Perhaps Stela L is a memorial of this occasion. If so, it was soon eclipsed by the new boundary stelae set up along the cliff some distance to the south. The first of these, Stela J, was laid out to be inscribed with the "Later Proclamation" in large, elegant hieroglyphs; and beside the tablet, which was located on the right side of the niche, was a new addition to the boundary markers, namely, statues of the royal couple flanked by their two eldest daughters, Meritaten and Meketaten. Both of these girls are also named in the text of the "Later Proclamation", showing that the younger sister must have come onto the scene some time during her father's fifth year as king. Two other stelae with substantially the same plan as J (tablet on the right and statues on the left-hand side of the niche) were also, apparently, laid out at this time; but it is clear that neither Stelae R nor A were completely inscribed (if they were inscribed at all) in year 6. Work on the boundary stelae, in fact, seems to have languished, perhaps as laborers were obliged to concentrate on the buildings of the city which was rising on the plain of El-Amarna. Two years after the "Later Proclamation" was issued, when Akhenaten came again "to see the stelae of the Aten which are on the mountain at the southeastern boundary of Akhet-Aten", the only ones to be seen at this spot were probably M and L, together with the perhaps still unfinished Stela J.

Akhenaten's visit in year 8 was probably what sparked the effort to complete the boundary stelae which took place thereafter. We cannot be sure in the case of Stela J, for which the bottom is gone; but the other, similarly planned tablets (A and R) were eventually inscribed both with the main text of the "Late Proclamation" of year 6 and with the "Renewal of the Oath" from the royal visit in year 8,

proving that these monuments were finished after that event. At the same time, a new series of stelae was ordered for the approaches to the city which were not already graced with boundary markers. These stelae are descendants of the prototypes laid out in year 6, but the statue groups -- the king, queen and their two daughters -- now flank the tablet instead of being to one side of it (see, for example, Stela S on fig. 6).[17] Probably contemporary as well, and thus finished after the royal visit of year 8, was the latest of the stelae bearing the text of the "Earlier Proclamation", Stela K. Perhaps intended to replace Stela M, where the stone is quite poor, Stela K may originally have resembled the other, earliest tablets: as on Stela X (and probably M), it showed only Meritaten with her parents on the lunette, and there is no reason why it could not also have shared the same simple architecture of these monuments. Any evidence in support of this last hypothesis is now gone, for the plan of Stela K now resembles that of most of the later boundary stelae, which were inscribed after year 8. In addition to the statues, moreover, the lunette was now altered to include a figure of the second princess, Meketaton (followed by an attendant) squeezed in between her elder sister and the right side of the tablet.[18] In appearance then, if not in content, Stela K resembled all of the other boundary stelae that were being built in the aftermath of Akhenaten's visit to the southeastern frontier in year 8.

It was while the later stelae were being built that Ankhsenpaaten, Akhenaten's third daughter, came onto the scene. Beside the two princesses' dyads on a few of these monuments (Stela P.Q, and on one side of U), a rectangular hole was sunk into the floor of the pavement to hold the sockle of a third statuette. Although in all cases the added statue is missing, its placement and implied scale suggest that it could only have belonged to this third daughter. The fact that all the later monuments -- those which were adapted for the third daughter and those which were not -- were initially planned to memorialize only <u>two</u> daughters strongly implies that Meritaten and Meketaten still held the field as the sole progeny of Akhenaten and Nefertiti when these monuments were laid out; and since all these stelae include, as an integral part of the inscription, the text of year 8, we should be safe in assuming that the royal couple still had only two daughters at the start of year 8, and that Ankhesenpaaten made her appearance, at the very earliest, sometime later that year.[19]

On the west bank of the Nile, Stela F (on the evidence of Petrie's copy) followed the pattern of most boundary stelae on the eastern side by concluding with the "Renewal of the Oath" from year 8. We cannot say more about it until we clear the site. It is doubtful that any more stelae between F, at the southwestern end, and the two stelae to the north, near Tuna el-Gebel (see fig. 1) will be easily found. The intervening ground is unsuitable, lacking the high cliffs found on the east bank and at the northwestern corner of Akhet-Aten. Stela F was carved on a low scarp of limestone projecting from the desert sands -- perhaps in desperation, for want of any better site opposite the southeastern stelae at Hawatta -- and

Akhenaten's agents would have found nothing better to work with before reaching the massif at the north end, where two stelae were carved.

These two stelae at the north end, A and B, <u>are</u> different from all the others, and from each other. Stela A belongs to the "earlier" form of the "Later Proclamation" (i.e., statues on the left and tablet on the right side of the niche), while Stela B is a typical later model, with statue groups flanking a centrally positioned tablet. Where they coincide is in having, in addition to the main text of year 6 and the "Renewal of the Oath" from year 8, a "colophon" to conclude the inscription. This text, also dated to year 8, is found only on these two stelae; and the combined architectural and epigraphic data from Stela A and B suggest that neither was originally planned to embrace the full text of all three parts of the inscription. Stela A, indeed, managed to do so only by undergoing a drastic alteration in its plan, having the entire original floor of the platform lowered to expand the space available at the bottom of the tablet (Cf. n. 13 above.) The result, with the statues now perched atop uncharacteristically high pedestals, was not imitated on Stela B, where instead the text was judiciously pruned to fit what may well have been a monument which had been carved, <u>grosso modo</u>, somewhat earlier.[20] As on the stelae on the east bank, only two of Akhenaten's daughters were originally represented on A and B. The addition of the third daughter came not in the form of a statuette, however, but in the medium of sunk relief, all three daughters being shown with their names and titles on the uninscribed side of one of the altars held by their parents' statues. Complete on A, with diagnostic traces ensuring their presence on B, thee epigraphs name the youngest daughter as "Ankhesenaten", omitting the definite article <u>pa-</u> which is customary in the writings of her name elsewhere at Amarna.[21] To this writer, at least, this peculiarity is further evidence for the belief that her appearances here and on the east bank mark, not a delayed advent in court circles, but her birth. The anomaly would be harder to explain if we maintained, on the contary, that Ankhesenpaaten had been born in years 6 or 7, and was then only sporadically included on monuments which, by slavishly following the pattern first laid out in year 6, had ignored her existence into year 8. The most probable date of her birth, then, is in year 8 or perhaps the years following. Since Akhenaten and Nefertiti had had a total of six daughters by the beginning of year 12,[22] their third child could have appeared no later than year 9 even if we assume that two out of the subsequent three daughters were twins. If so, Ankhesenpaaten was probably no older than nine years old when her father died in his seventeenth regnal year; and she must have been a young teenager when she herself became queen of Egypt, as Tutankhamun's consort, a few years later.

In the spring of 1985, the expedition staff hopes to return to Akhet-Aten to finish the project begun in 1984. Stela F will be cleared and the remains recorded; and the monuments inscribed with the "Earlier Proclamation" will be given what we hope will be their final and definitive collation. If time permits, the "empty" areas

where no stelae have hitherto been found (the northeastern range beween X and V, and the west-central area between B and F), will be searched for traces of other monuments of Akhenaten. Our highest priority, however, is to complete the field work which will enable us to begin preparing the new edition of the known boundary stelae as soon as possible.

In acknowledging the help of all those who made the first season of the El-Amarna Boundary Stelae Project possible, I would like to thank first the members of the High Committee of the Egyptian Antiquities Organization -- particularly Dr. Ahmed Kadry (President) and Dr. Aly el-Khouli (Director of Excavations for Middle Egypt)-- for approving the project, and also for permitting the members of the expedition to live in the EAO's resthouse at Tuna el-Gebel during our work on the west bank. Valued help with local arrangements was given by Mr. Mahmoud Hamza, Director of Antiquities for Middle Egypt, and by Mr. Samir Anis, Chief Inspector of Minia. Our two inspectors -- Mr. Adel Hasszan Mahmoud on the east bank at El-Amarna, and Mr. Yahya Zaharia on the west, at Tuna el-Gebel -- both showed a resourcefulness in expediting our work and a patience in bearing its rigors for which we can never adequately thank them. For logistic and administrative support, we are grateful to Professor Janet H. Johnson (Director, The Oriental Institute, University of Chicago); and we also thank Professor Lanny Bell (Field Director, Epigraphic Survey, Chicago House, Luxor) and Mr. Salah Shehat Suleiman (the Survey's chief engineer) for their help in arranging the loan and transport of equipment. We also thank Professor Klaus Baer (past President of the American Research Center in Egypt) and Dr. Paul Walker (ARCE's Executive Director) for their help in expediting the project under ARCE's sponsorship; and we appreciate the help of Dr. Robert Wenke and Dr. Nanette Pyne (past Co-Directors of ARCE's Cairo office) for forwarding our application to the EAO as well as for other forms of assistance -- notably, for the hire of a vehicle capable of negotiating the sandy outer wastes of Akhenaten's capital. We also thank Ms. May Trad, whose help near the end of our mission enabled us to finish our work on time. Funding for the Project came from a grant made by the Committee on Research of the American Philosophical Association, with the generous assistance of a private donor. To all these people and their organizations, and to the unnamed others who contributed to the success of the El-Amarna Boundary Stela Project's first season, its members are deeply grateful.

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NOTES

1. W. M. F. Petrie, Tell el-Amarna (London, 1893), p. 5 and pl. xxxiv.
2. Paul Timme, Tell el-Amarna vor der deutsche Ausgrabung im Jahre 1911, "Wissenschaftliche Veröfftentlichung der Deutschen Orient-Gesellschaft" 31 (Berlin, 1917), pp. 57-58 and pl. 5.
3. N. DeG. Davies, The Rock Tombs of El-Amarna V, "Egypt Exploration Society Architectural Survey" 17 (London, 1908), pp. 19-34 and pls. xxv-xliv.
4. Ibid., pl. xxvi.
5. Ibid., pls. xxv, xxxiv (mislabeled 'N').
6. Ibid., pls. xxvii-xxviii.
7. Stela B, end of line 4: see ibid., pl. xxvii, sixth row.
8. Ibid., pl. xxxiii, bottom.
9. Ibid., pp. 28-31, with pls. xxix-xxx (K), xxxi-xxxii (X).
10. Checking of the originals depended on Davies' copies; but we also referred to Maj Sandman, Texts from the Time of Akhenaten, "Bibliotheca Aegyptiaca" 8 (Brussels, 1934), pp. 103-18. Ostensibly a combined copy of all three versions from Davies' publication, we found it to be disappointing, missing many elements which Davies had already recorded. The "Later Proclamation" fares much better in this publication.
11. Davies, El-Amarna V 19, n. 2.
12. Petrie, Tell el-Amarna, pp. 5-6; Davies, El-Amarna V 22-28.
13. Ibid., pl. xxxiv.
14. Ibid., p. 28; cf. Battiscombe Gunn, "A Note on the Aten and his Names," Journal of Egyptian Archaeology 9 (1922):171-72.
15. Sandman, Texts from the Time of Akhenaten, p. 103.
16. L. G. Leeuwenberg, "De grensstele's van Amarna," Jaarbuch Ex Oriente Lux (1944-48=1952):39-49.
17. Stelae B, N, P, Q, S, U and V. Though Stela V is in ruinous condition and no statues remain to be seen, the writer believes that it too belongs to the later series because the tablet stands at the center of the niche and not at one side of it, as do the tablets of the earlier versions of the "Later Proclamation".

18. Since this part of Stela K is destroyed today, the observation depends on the authority of Davies, El-Amarna, p. 25 and n. 3; cf. his photographs (ibid., pls. xxxvii, right; xxxviii). Davies' insistence that the second of the added figures was an attendant and not a third daughter is strengthened by the absence of inscriptions naming any of the daughters beyond Meritaten and Meketaten on the lunette of the stela.

19. Surely not as early as years 5 or 6, as suggested by W. Schenkel, "Anchesenpaaten" in Lexikon der Ägyptologie I (Wiesbaden, 1975), col. 262.

20. The evidence for the addition of the colophon to Stelae A and B after their tablets had been laid out, no less than its placement at the bottom of the inscription, seems to confirm the writer's earlier supposition that the "Repetition of the Oath" belongs near the beginning of Akhenaten's eighth regnal year and that the date of the colophon is near its end: see W. J. Murnane, "On the Accession Date of Akhenaten," in Studies in Honor of George R. Hughes, "Studies in Ancient Oriental Civilization" 39 (Chicago, 1977), pp. 163-67.

21. The inscriptions are published--albeit at a tiny scale--in Davies' drawing of Nefertiti's statue from Stela A (idem, El-Amarna V, pl. xxxiv). The variant is not noted in R. Hari , Répertoire onomastique amarnien, "Aegyptiaca Helvetica" 4 (Geneva, 1976), no. 63.

22. See D. B. Redford, The Akhenaten Temple Project I (Warminster, 1976), p. 89 top.

CAPTIONS TO THE FIGURES

1. Distribution of the boundary stelae around the site of El-Amarna (drawing by Helena Jaeschke)

2. Davies' copy of an extract from line 19 of Stela A (top) compared with 1984 copy of the same passage (bottom) (drawing by Helena Jaeschke)

3. (Top:) Davies' copy of the end of line 14 from Stela B; (Bottom:) The same passage copied in 1984, showing the original version in the upper line and the final, recut version in the lower line (drawing by Helena Jaeschke)

4. Davies' copy of part of line 13 from Stela K (top) compared with 1984 copy of the same passage (bottom) (drawing by Helena Jaeschke)

5. The lunette of Stela X (photograph by C. C. Van Siclen)

6. Boundary Stela S in 1984 (photograph by C. C. Van Siclen)

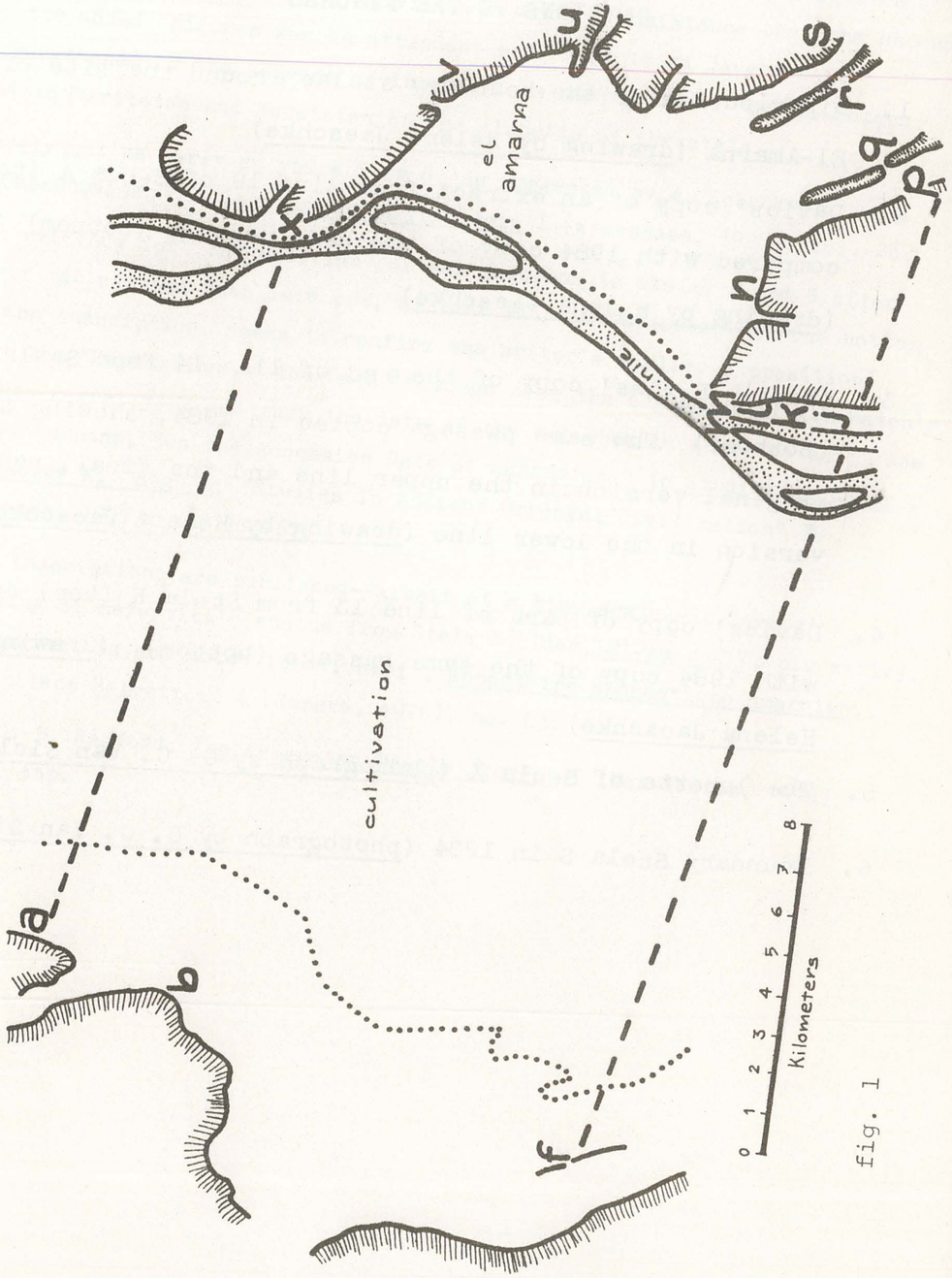

fig. 1

fig. 2

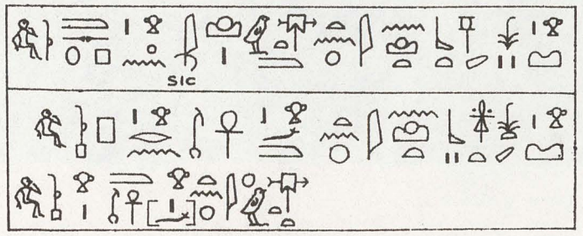

fig. 3

fig. 4

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